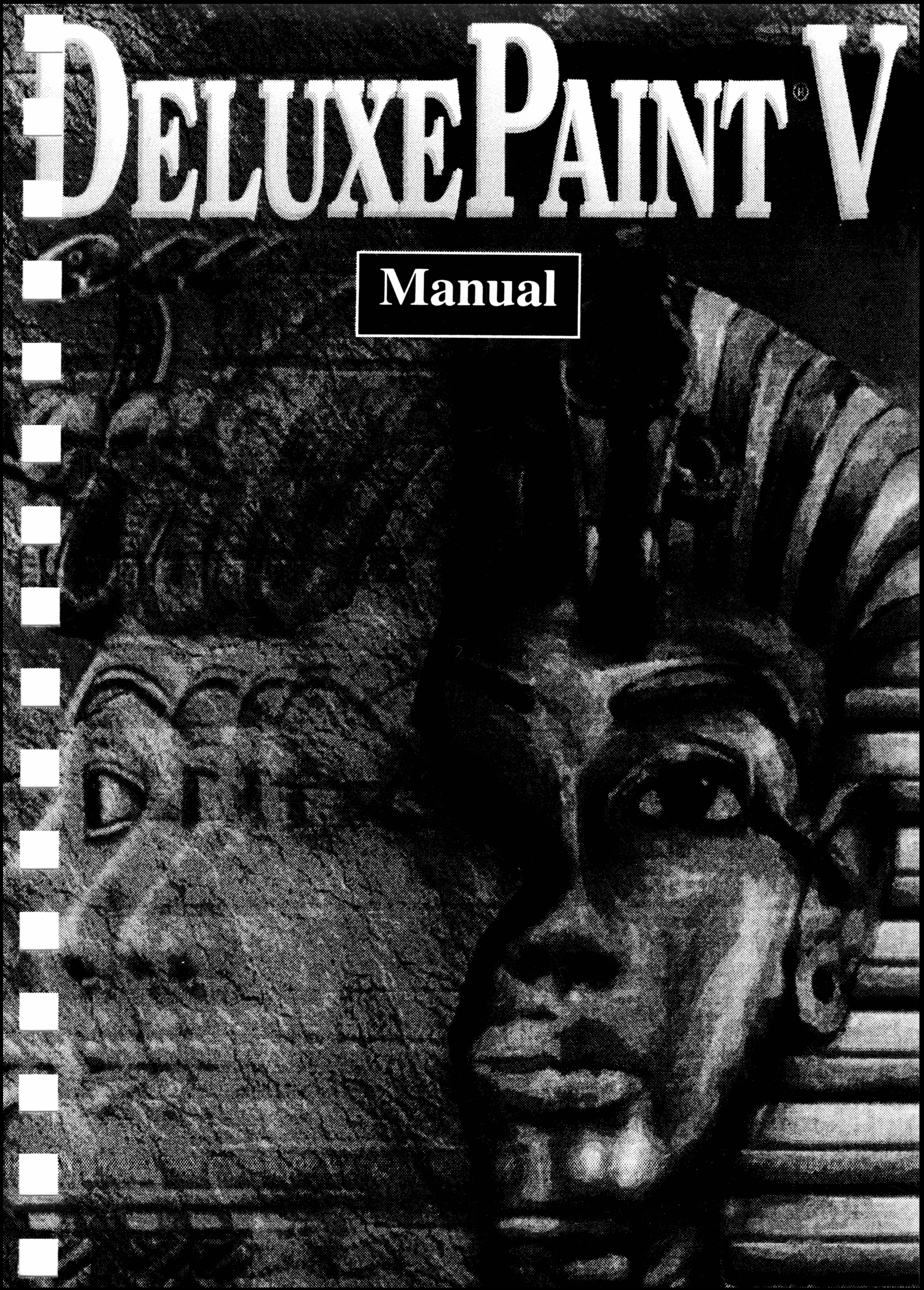
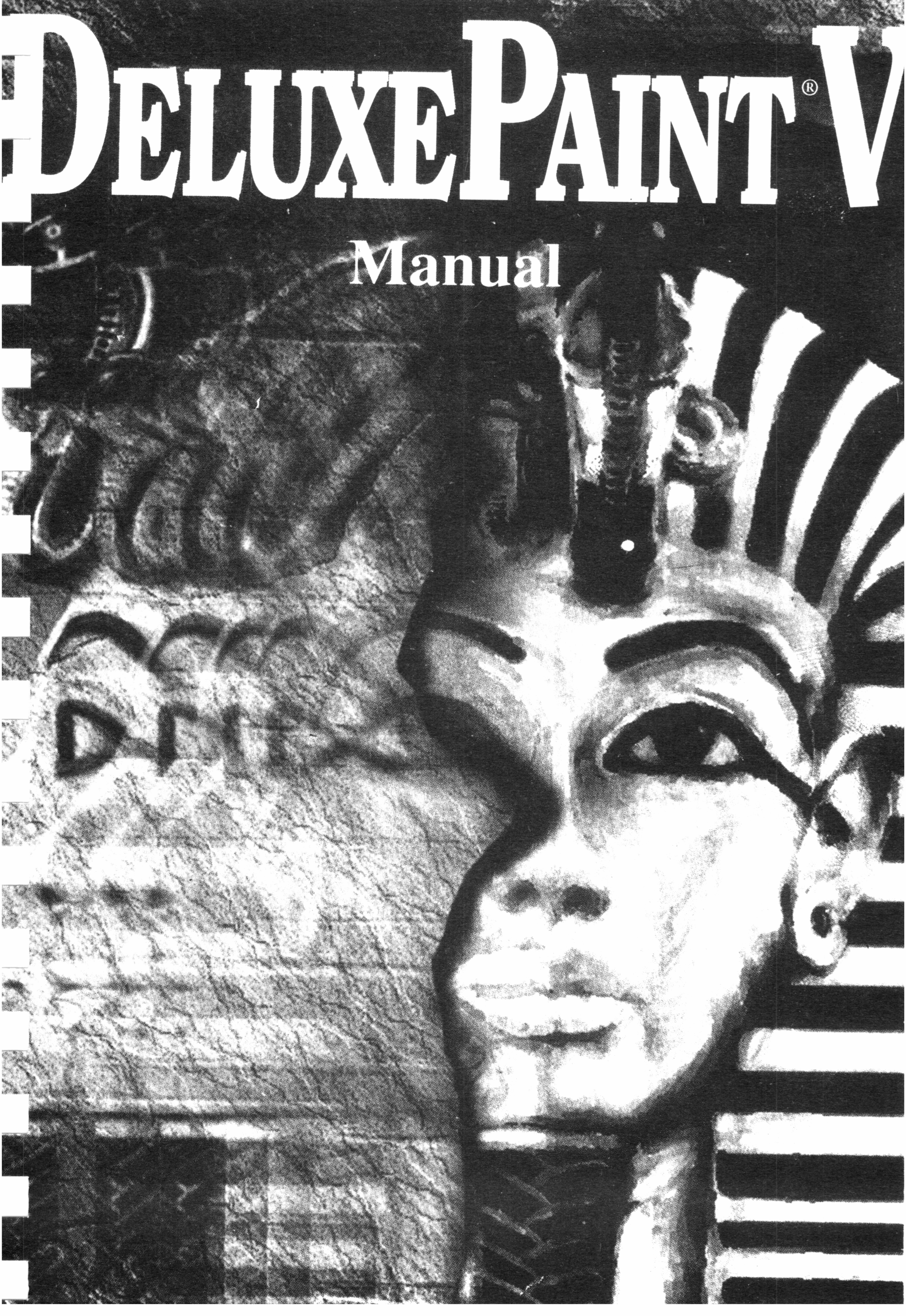
DeluxePaint® V

Manual



DELUXEPAINT® V

Manual



EPILEPSY WARNING

PLEASE READ BEFORE USING THIS GAME OR ALLOWING YOUR CHILDREN TO USE IT.

Some people are susceptible to epileptic seizures or loss of consciousness when exposed to certain flashing lights or light patterns in everyday life. Such people may have a seizure while watching television images or playing certain games. This may happen even if the person has no medical history of epilepsy or has never had any epileptic seizures.

If you or anyone in your family has ever had symptoms related to epilepsy (seizures or loss of consciousness) when exposed to flashing lights, consult your doctor prior to playing.

We advise that parents should monitor the use of games by their children. If you or your child experience any of the following symptoms: dizziness, blurred vision, eye or muscle twitches, loss of consciousness, disorientation, any involuntary movement or convulsion, while playing the game, **IMMEDIATELY** discontinue use and consult your doctor.

PRECAUTIONS TO TAKE DURING USE

- Do not stand too close to the screen. Sit a good distance away from the screen, as far away as the length of the cable allows.
- Preferably play the game on a small screen.
- Avoid playing if you are tired or have not had much sleep.
- Make sure that the room in which you are playing is well lit.
- Rest for at least 10 to 15 minutes per hour while playing a game.

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Introduction

DeluxePaint V is an upgraded and enhanced version of Electronic Arts' premier colour paint program for the Amiga, DeluxePaint IV. Its improved and more versatile range of paint and animation features were designed to meet the basic needs of amateur artists, while satisfying the rigorous requirements of graphics and video professionals.

If you're new to computer graphics, you'll want to read the next section *For New Artists Only,* before you move on to the rest of the introduction to DeluxePaint V. If you're an experienced computer graphic artist, you might want to move directly to *About this Manual.*

For New Artists Only

You are about to discover that DeluxePaint V can help you create prototypes of your designs more quickly and easily than any traditional medium. You'll move from inspiration to execution in minutes instead of hours. We think that DeluxePaint V's power and versatility can help you develop a new approach to graphic art. You'll soon find that DeluxePaint V is ideal for creating graphic design comps, video and traditional animation, video titling, desktop presentations, and other desktop publishing applications.

DeluxePaint V lets you do things that would be difficult, if not impossible, using traditional methods. For example, you can easily rotate a picture or flip it to create its mirror image. Shrink or expand an image as you wish, pick it up, and place it precisely. Or you can create a mathematically exact tonal range for your colours just by specifying the beginning and ending shades and the number of steps in between.

You can also move images from one part of the picture to another, or copy an image and paste it anywhere in your picture. Create a forest of leaves just by drawing a single leaf and pasting it throughout your picture. And make global changes to the colours in your artwork with a few keystrokes. DeluxePaint will also help you find more efficient ways to create traditional drawing, painting, and animation effects.

You can save all your work on disk, so you don't have to create everything from scratch each time you work on a design. This means you can collect a library of images (called clip art) to use in future designs. Because you can save versions of your picture as you go, you can always return to an earlier state of a design and pick it up from there, if you like. Finally, because you can print as many originals of a picture as you need, or make unlimited copies of your data disks with no degradation from one generation to the next, there need never be just one original of a picture to lose or spill coffee on.

So, welcome to the world of computer-generated art. As you begin this great artistic adventure, we think you'll be impressed and delighted by DeluxePaint V.

About This Manual

When you need help or simply want more information about DeluxePaint V, this manual is the best resource. But you don't have to memorise the manual to master the program. We've organised the information here so you can quickly learn how to use the program in a manner that best suits your style and experience.

The manual assumes that you know your way around your Amiga. If you just recently acquired your computer, familiarise yourself with Amiga terminology and techniques *before* using DeluxePaint V. You do not have to become an Amiga expert. But, *selecting, dragging, pointing,* and *clicking* should not be a mystery to you; nor should *menus, submenus, windows,* and *requesters* sound strange.

If any of these terms are unfamiliar, take a few minutes to browse through your Amiga User's guide, and make sure you read *Hints and Reminders while using DeluxePaint,* below, for some special tips. Knowledge of basic Amiga operations and features will help you learn to use DeluxePaint V quickly and adeptly.

Every User Should Read

Before starting to work with DeluxePaint V, there are three things that every user ought to do.

☐ Read *What's New* at the end of this introduction for a brief description of DeluxePaint V's exciting new features. It's especially designed for artists who are familiar with previous versions of DeluxePaint, and beginners will also find much useful information.

☐ Briefly review the Table of Contents to locate areas of special interest. Note that Chapters 4–7 assume familiarity with the more basic parts of the program.

☐ Carefully read *Getting Started* to be sure you have all the proper equipment and software. If you have a hard drive, follow the instructions in *Installing on a Hard Drive* below for installing DeluxePaint V on it.

After you've read *What's New,* reviewed the Table of Contents, and installed DeluxePaint V, use the manual in whatever way suits you and your work. Follow our *Guided Tour* or strike off on your own. You can always consult *Reference* if you need help or want more information. Here are a few approaches you can take to learn DeluxePaint V, depending on your knowledge of computer graphics programs.

Beginning Computer Graphics Users

Work through *Getting Started* and the *Guided Tour* — in order and in detail. These chapters describe the fundamentals of the program and introduce some advanced techniques. You'll start creating with DeluxePaint V right away and learn about its more complex functions as you go along. After you've worked through the *Guided Tour,* move on to what interests you. We highly recommend Chapter 4, ***Painting Tutorials.*** Keep the manual close by so you can consult *Reference* to learn more about other program features when you're ready.

Experienced Computer Graphics Users

If you're already familiar with DeluxePaint IV, quickly scan ***What's New***, for new information. You'll find an introduction to some of the unique paint features of DeluxePaint V there. Move on whenever you're ready. Use Chapters 4–8, and the Appendixes to learn more about powerful program features like colour mixing, the LightTable, stencils, and animation.

Those Who Don't Read Manuals

If you don't read manuals as a rule, we still hope that you'll read ***Getting Started.*** Keep this manual nearby, so you can consult it when you need to.

Hints and Reminders while using DeluxePaint V

Manual Conventions

Several special elements in the manual text are designed to make learning DeluxePaint V easier.

■	Filled squares indicate action items or steps. They mark how-to sections that present something you should do to understand a program feature or function.
□	Outline squares indicate a list of features, functions, or contents. *They do not indicate action items.*
❖	A note preceded by this symbol indicates important additional information, a warning, or a condition. Be sure to read every item that's labelled this way.
boldface	DeluxePaint V's menu options and keystrokes appear in the text in simple boldface type. Every menu option is thoroughly described in Chapter 8, ***Reference.***
`special`	This special monospace typeface indicates characters that you should type.
Return	Refers to the Return key (sometimes called the Enter key) on your keyboard. Return is indicated on some keyboards by the ↵ symbol.
Backspace	Refers to the Backspace key, indicated by the ← symbol on some keyboards.
Control	Refers to the Control key (Ctrl) on your keyboard.
A	Refers to the Amiga key(s) on the bottom row of your keyboard. Some computers show these as Commodore key(s) "C=".
Keyboard Equivalents ⇧	You can access many DeluxePaint tools and functions directly from your keyboard. For example, typing the capital letter `S` activates the **Show Page** option, just as if you had chosen the option from the Picture menu. These keyboard commands *ARE* case sensitive, so when we show a command that requires a capital letter, like `Q` for **Quit**, make sure you hold down the Shift key as you type the letter. As you become more familiar with the program, you'll find that these keyboard shortcuts can save you time.

Using the Mouse

In this manual, we'll use the term *click* a few different ways to describe some standard mouse actions:

☐ CLICK means press and quickly release the *left* mouse button.

☐ DOUBLE-CLICK means press and quickly release the *left* mouse button *twice.*

☐ RIGHT-CLICK means press and release the right mouse button.

Dragging the Mouse

When you are asked to DRAG the mouse to perform some operation, we mean, hold down the LEFT mouse button and move the mouse, unless otherwise indicated.

Painting with the Mouse

The two mouse buttons let you switch between foreground and background colours while painting.

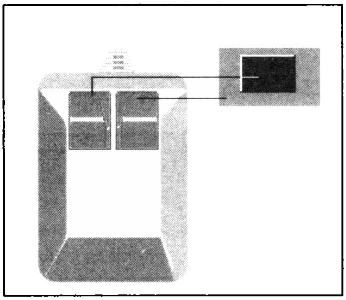
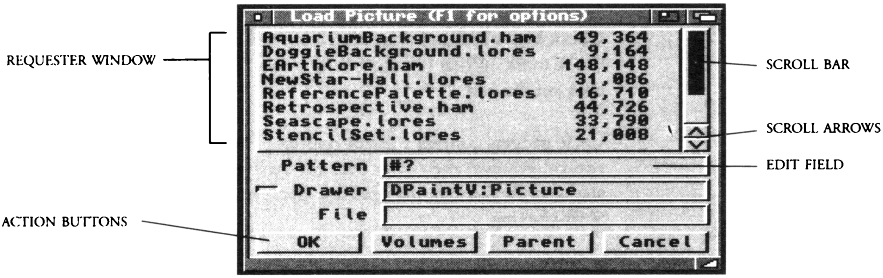


FIGURE I-1 PAINTING WITH THE MOUSE

Pressing the left mouse button paints with the current foreground colour; pressing the right mouse button paints with the current background colour. You can paint with either colour using any of the painting tools. Likewise, clicking a colour in the palette selects it as your foreground colour, while right-clicking a colour selects it as your background colour.

Requesters

Requesters display items that you can choose. They always require some input from you. Some requesters let you modify the way a tool operates; other requesters let you load or save files.



```
Load Picture (F1 for options)
AquariumBackground.ham       49,364
DoggieBackground.lores        9,164
EArthCore.ham               148,148
NewStar-Hall.lores           31,086
ReferencePalette.lores       16,710
Retrospective.ham            44,726
Seascape.lores               33,790
StencilSet.lores             21,008
```

Pattern #?

Drawer DPaintV:Picture

File

FIGURE I-2 LOAD REQUESTER WITH TOO MANY FILES TO SHOW IN ONE WINDOW

Action Buttons

Action buttons activate operations or commands made in the requester, or respond to a prompt. Clicking an action button usually closes the requester. The **OK** button accepts any changes made to settings since the requester was opened. **Cancel** closes the requester without accepting any changes.

The highlighted item in the requester is the one currently selected. Any action buttons you click will affect the item currently selected.

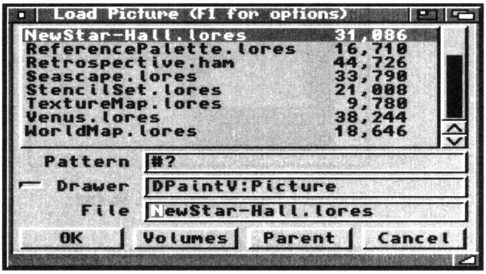
Scroll Bars

Scroll bars are used to move (scroll) through a list of items that's too large to appear in one window of a requester. For example, there are too many filenames to fit in one window of Figure 2. You have to *scroll* the window to see the names of files that are not visible. There are three ways to scroll through a list.

☐ Click the arrows on either end of the scroll bar.

☐ Drag the scroll box to either end of the scroll bar.

☐ Click the shaded area on either side of the scroll box.



```
NewStar-Hall.lores          31,086
ReferencePalette.lores      16,710
Retrospective.ham           44,726
Seascape.lores              33,790
StencilSet.lores            21,008
TextureMap.lores             9,780
Venus.lores                 38,244
WorldMap.lores              18,646
```

Pattern #?

Drawer DPaintV:Picture

File NewStar-Hall.lores

FIGURE I-3 LOAD REQUESTER WITH THE REMAINING FILES EXPOSED

Edit Boxes

Edit boxes let you enter file names or other information from the keyboard. Click in the edit box to place the cursor, then type any printable characters. Press the backspace key (←) to delete characters left of the cursor. Press **Del** to delete characters under the cursor.

Review these brief descriptions if you see something on screen that's unfamiliar. When you're ready to paint, move on to Chapter 1, *Getting Started.*

Check Boxes

Check boxes indicate if an item is turned on or off. When on, the box has a check mark. When off, the box is empty. To change the check box setting, click on the box.

Cycle Gadgets

Cycle gadgets contain a list of options. The displayed option is the selected option. Position the cursor over the cycle gadget and click the selection button to cycle through the options. Cycle backwards through the options by Shift-clicking.

Radio Buttons

Radio buttons allow you to select one option from a fully displayed list. Each option in the list has a radio button next to it.

Selected radio buttons are highlighted and appear indented. Unselected radio buttons are one colour and appear raised above the screen.

Select a radio button by clicking on it. Clicking on a radio button deselects any previously selected option in the list.

What's New in DeluxePaint V?

If you are familiar with DeluxePaint IV, you'll quickly master the new features and enhanced functionality of DeluxePaint V. You probably won't need to spend a lot of time working through this manual, but there are some special options here that you won't want to miss. This section briefly describes the major additions and improvements to the software and directs you to the areas where you'll find more information. For the straightforward changes, the best place to find information quickly is in Chapter 8, ***Reference.***

The major enchancements and updates in the software are as follows:

True Colour Support	DeluxePaint V supports 24-bit colour data through the use of a 24- bit backing store. You can now Load, Edit, and Save 24-bit IFF data.
ARexx Support	The popular inter-process scripting/communications language ARexx is supported. ARexx can be used to control programs internally and externally on the Amiga as well as provide recordable macro functionalities to DeluxePaint.
Natural Media	Natural Media Types and Textured Background modes enable emulation of stylistic painting modes/effects such as water colour, oils, and chalk. The ability to paint on textured backgrounds also enhances the natural feeling of painting and drawing.
Improved Airbrush	The Airbrush now offers realistic spray with adjustable radius settings.
Loading Anims different sizes	Load any size Anim, including virtual pages. Create and edit larger than screen animations.
Camera Moves	This new feature allows scrolling backgrounds and zoom in and zoom out type moves.
Improved Gradient/ Translucency Control	User-defined controls for gradient translucency. New and improved gradient dithering in all modes (Smooth, Adjustable Pattern, and Adjustable Random type gradient fills).
LightTable Enhancements	Different dimming options for LightTable. Multiple levels of dimming for LightTable, user definable LightTable settings (Layers, Dim levels).
Individual Palettes per frame	You can now create, edit, load, and save multiple palette animations.
Animation Fade/ Translucency options	From within the Move Requester you can specify a beginning and ending level of translucency for the custom brush or animbrush being moved.

Animation Rate Changes per Frame	Set the animation frame rate or pause on a per frame basis if so desired.
Key Frame Animation	Using the Move requester the user will be able to interactively position their brush or animbrush on start and end key frames in their animation.
Pressure Sensitive Tablet Support	Cycle pressure, size, translucency, and reverse size settings. Requires a supported pressure sensitive tablet.
Corral Brush Pickup	A new brush pickup mode much like a freehand drawing tool.
Seed-Fill Pickup	This “magic wand” tool allows you to pick up a custom brush from the screen by simply clicking on the object.
Improved File Format Support	Support for Anim Op-8 format.
Improved Speed	Code optimisation has increased the speed of some functions in the program.
Enhanced Interface	Standard Amiga keyboard commands for applications, localisation, and better user definable preferences for most Program settings.
Enhanced Printing Options	Storyboard printing—Animboard™ allows you to print a storyboard of your animation. Expanded printing control and support for system printer preferences have been added.
Picture Previews	You can now view and save a picture preview in the file or file icon. The file's icon will also be an image preview.
New player, DeluxePlayer	DeluxePlayer provides support for ARexx and multiple palette anims, and the ability to play anims from your hard drive.
Mouse/Tablet Tracking	Tracking and smoothing for better looking freehand drawing. Mouse/tablet movements are buffered and smoothed.
Colour Panel Enhancements	You now have the option to turn on and off the grid around the colour cells to do side-by-side colour comparisons. RGB and HSV sliders are shown simultaneously. Also included are Colour Cell extended selections, true RGB colour cells (no longer HAM), a standardised design and look for all colour panels, and a larger and enhanced mixing area.
Status Gauge	Status gauges provide visual feedback on the progress of many DeluxePaint operations.
Animation Rate Status	If your computer system cannot maintain the specified animation rate, you can call up a speedometer while the animation is running. The speedometer will visually provide you with the estimated animation rate.

Chapter 1

GETTING STARTED

This chapter briefly describes the contents of your DeluxePaint package and the computer hardware and software you will need to use the program. It also describes how to:

☐ Organise your disks
☐ Install DeluxePaint on a hard drive
☐ Start DeluxePaint
☐ Open a file
☐ Quit the program

Software

Your DeluxePaint package contains four (4) floppy disks.

☐ The *Program* disk contains the installation program, DeluxePaint V program, DeluxePaint font, DeluxePaint Libraries, ReadMe file, and the DeluxePlayer animation player. The DeluxePlayer program lets you play your animations outside of DeluxePaint (you'll find information about the DeluxePlayer in ***Appendix C***).

☐ The *Media* disk contains textures, media types, brushes, example moves, colour sets, and two colour fonts that you can use in your own work.

☐ The *Examples* disk contains pictures, a few animation files, and some AnimBrushes to give you some ideas of what you can do with DeluxePaint V's animation features.

☐ The *Extras* disk contains the gallery, AGA art, and system patches.

The ReadMe File

Before you do anything else, read the ReadMe file on your Program disk. This file contains information about the program that was not available before the manual went to press. To read the ReadMe file:

ReadMe

- Double-click on the ReadMe icon.

This opens a text window that, at a minimum, lists the title, version number, and copyright information about the program. If you need help using the ReadMe file, press `h` on the keyboard to see a screen of text viewer keyboard commands. To exit the ReadMe file:

- Press `q` on the keyboard.

Hardware

To use DeluxePaint V you need:

☐ An Amiga computer with at least 2 megabytes (MB) of random access memory (RAM). Four MB of RAM (or more) are highly recommended. For AGA models, 2 MB are required (4 MB required for 24-bit RGB buffer editing);

☐ Amiga DOS 2.04 or greater (2.1 or 3.1 recommended);

☐ Analogue RGB or Multisync Colour Monitor;

☐ One floppy drive and a hard drive or two floppy drives (hard drive highly recommended);

❖ If your Amiga has only floppy drives, we recommend that you not double-click on file icons to start DeluxePaint and load a file. Instead, start DeluxePaint and then load the file by choosing Load from the appropriate menu.

☐ Some initialised floppy disks, or a hard drive for saving your work.

If you want to print the artwork you create, you'll need a printer capable of reproducing black and white or colour graphics. Consult your *Amiga Users Guide* for information about connecting printers and other peripherals to your computer.

Recommended Configuration

Amiga 68040 CPU, Amiga DOS 2.1 or higher, AGA chipset, 2 MB of Chip RAM, 2 MB Fast RAM, 100 MB hard drive, multisync monitor.

Organising Your Disks

We assume that you already know how to initialise and copy disks, create and rename drawers, and move files from one disk to another. If you are not familiar with all of these basic actions, we suggest you consult your *Amiga Users Guide* before going any further.

Installing on a Hard Disk

If you use a hard disk drive, you will probably want to install DeluxePaint on it (if you don't have a hard disk, see *Installing on Floppy Disks* below). The following steps assume that you started the computer with a standard Workbench that has been configured properly to support a hard disk.

IMPORTANT!

You'll need a minimum of 1 MB (3.5 MB recommended) of available disk space and to install DeluxePaint V on your hard drive. If you choose a minimum install, the art samples will not be installed.

The install program will install DeluxePaint V to a drawer of your choice, and lets you copy the program fonts, which need to be installed in your system, in your FONTS: drawer.

1. Insert Program Disk into drive DF0:. The Program Disk icon appears on your workbench. Double-click the disk icon to open the disk.

2. Double-click on the ReadMe icon. The ReadMe file contains information that didn't make into this manual before press time. When you are finished reading the ReadMe file, close it.

3. Double-click on the Install icon. Installation of DeluxePaint begins. Follow the onscreen prompts.

DeluxePaint V installs the following on your hard drive:

- ☐ DeluxePaint application.
- ☐ DeluxePlayer application and DeluxePlayer ReadMe text file. The DeluxePlayer ReadMe file contains instructions and information about the Player.
- ☐ DeluxePaint ReadMe text file
- ☐ Picture drawer
- ☐ Brush drawer
- ☐ Catalogues drawer
- ☐ Textures drawer
- ☐ Media drawer
- ☐ Libs drawer
- ☐ Patterns drawer
- ☐ Anim drawer
- ☐ AnimBrush drawer
- ☐ Fonts drawer
- ☐ Colours drawer
- ☐ Move drawer

4. When prompted, remove the Program Disk, and insert the Media Disk, then click Proceed.

5. When prompted, remove the Media Disk, and insert the Examples disk, then click Proceed.

6. When prompted, remove the Examples Disk, and insert the Extras disk, then click Proceed.

7. Follow the onscreen prompts. When DeluxePaint is finished installing, a dialogue appears asking if you'd like to run the program now. Click Yes. The registration screen appears.

8. At the registration screen, enter your name, your company name, and the DeluxePaint registration number on the registration card included in your DeluxePaint package.

9. When you're finished with registration, click Use. DeluxePaint is now installed on your hard drive, and the Screen Format requester appears (see below).

Installing on Floppy Disks

If you don't have a hard drive, we strongly recommend that you install DeluxePaint onto working copies of the original disks. This will help protect the originals from accidental damage, and you will be able to make new copies if necessary. Also, make sure you have one or more blank initialised disks handy for saving your work.

FLOPPY USERS! Before installing on floppy disks, read the following notes:

❖ You must have four (4) formatted Amiga disks prepared before you install to floppies.

- Floppy disk installation requires two disk drives.
- When prompted to insert a Workbench disk during a floppy install, you must insert your Workbench disk in DF1: (*not DF0:*).
- You must have the rexxsupport.library and rexxsyslib.library files in your sys:libs drawer. The program will not function without them.

When you are sure you have met the above requirements, proceed with floppy installation:

1. Insert Program Disk into drive DF0:. The Program Disk icon appears on your workbench. Double-click the disk icon to open the disk.
2. Double-click on the ReadMe icon. The ReadMe file contains information that didn't make into this manual before press time. When you are finished reading the ReadMe file, close it.
3. Double-click on the Install icon. Installation of DeluxePaint begins. Follow the onscreen prompts to choose Floppy Install and insert floppies as necessary to complete the installation.

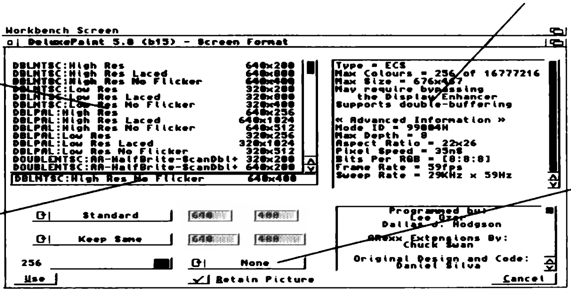
- Installation onto floppies can take up to half an hour, so be patient.

4. When DeluxePaint is finished installing, a dialogue appears asking if you'd like to run the program now. Click Yes. The registration screen appears.
5. At the registration screen, enter your name, your company name, and the DeluxePaint registration number on the registration card included in your DeluxePaint package.
6. When you're finished with registration, click Use. DeluxePaint is now installed on your floppy disks, and the Screen Format requester appears (see below).

Starting DeluxePaint V

- Double-click the DeluxePaint program icon to run the application.

When you start DeluxePaint, the program presents a *requester* (a window that requires some input from you) inviting you to select a screen format. The screen format requester is updated from DeluxePaint IV or AGA, and contains new options.



```
DBLNTSC:High Res                   640x200
DBLNTSC:High Res Laced             640x800
DBLNTSC:High Res No Flicker        640x400
DBLNTSC:Low Res                    320x200
DBLNTSC:Low Res Laced              320x800
DBLNTSC:Low Res No Flicker         320x400
DBLPAL:High Res                    640x256
DBLPAL:High Res Laced             640x1024
DBLPAL:High Res No Flicker         640x512
DBLPAL:Low Res                     320x256
DBLPAL:Low Res Laced              320x1024
DBLPAL:Low Res No Flicker          320x512
DOUBLENTSC:AA-HalfBrite-ScanDbl+ 320x200
DOUBLENTSC:AA-HalfBrite-ScanDbl+ 640x200
DBLNTSC:High Res No Flicker        640x400
```

```
Type = ECS
Max Colours = 256 of 16777216
Max Size = 676x467
May require bypassing
  the Display Enhancer
Supports double-buffering

« Advanced Information »
Mode ID = 99004H
Max Depth = 8
Aspect Ratio = 22x26
Pixel Speed = 35nS
Bits Per RGB = [8:8:8]
Frame Rate = 59fps
Sweep Rate = 29KHz x 59Hz
```

```
Programmed by:
Lee Ozer
Dallas J. Hodgson

ARexx Extensions By:
Chuck Swan

Original Design and Code:
Daniel Silva
```

VIEW CURRENT DISPLAY INFORMATION

CHOOSE A NEW DISPLAY MODE

TURN ON B
ING STORE I
24-BIT COLOUR]

TYPE IN YOUR OWN
DISPLAY MODE OR
PATTERN HERE

FIGURE 1.1 CHOOSE SCREEN FORMAT REQUESTER

You can choose your display mode from the list that appears in the Choose Display Mode window, or type in your own mode in the Display Mode text gadget. Text Overscan and Standard Overscan dimensions are now found in the Preferences directory of your system.

There are several factors that determine which screen modes appear in the Choose Display Mode window: The chipset you're using, the version of your operating system, your Monitors setting, and Mode Names setting. Adjusting any or all of these items may change the availability of certain screen modes and dimensions.

Choose Display Mode: Click on one of the available display modes to select that mode. The display modes that appear are dependent on what is in your Monitors drawer at boot up. DeluxePaint reads which monitors you have available for use and automatically makes their screen modes available in the Screen Format requester. Note: Your monitor must be capable of displaying the modes you have in your Monitors drawer. For example, a 1084 monitor won't display Multiscan modes.

Screen Size: Click the button to cycle through the available sizes. The Custom option allows you to choose the size of the screen using the two text boxes (width, height).

Page Size: Select Screen to make the page size the same as the current screen size dimensions. Select Keep Same to retain the current page size for new documents. If the current page size is too small for the current screen dimensions, it is increased, but won't affect the image.

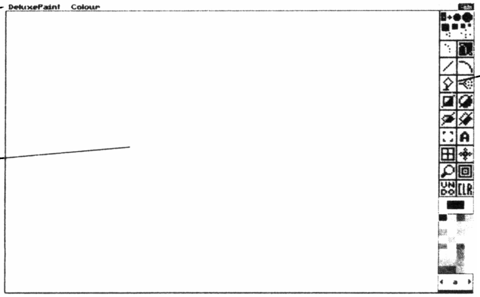
Palette Size: This slider defaults to the maximum colours for the selected display mode, but can be set to a lower number if desired.

Retain Picture: Click this checkbox to retain the current picture (this is on by default).

Backing Store: Cycle between None (default) or 24-bit RGB for using a backing store to enable 24-bit colour.

- Click Use to use the current settings.

You'll see the Workbench screen for a moment, then the Painting Screen appears.



TITLE BAR/ MENU BAR

TOOLBOX PALETTE

PAINTING AREA OR "PAGE"

FIGURE 1.2 DELUXEPAINT SCREEN

The Painting Screen is your canvas or paper. It's where you'll create, colour, edit, and manipulate your art. Animations you load also appear here.

The Toolbox contains the brushes, shape tools, and tool-modifiers you'll use to create and edit your artwork. You can select a tool by clicking on it.

The Palette contains the colours representing a portion of your current colour spectrum (sometimes called a *colour universe*). This is where you select the colour you want to paint with.
Directly above the Palette is the Colour Indicator. The two rectangles display the colours you're currently using to paint. The inner rectangle shows the *foreground* colour — the colour your brush is currently using. The default foreground colour is grey. You can choose a different foreground colour by clicking on any colour in the palette. The outer rectangle shows the current *background* colour — the colour you are painting on or over. This colour is black by default. You can choose a different background colour by right-clicking on it.

If this is your first time using DeluxePaint, we recommend you work through the next chapter, where you will learn how to use many of DeluxePaint's tools and techniques.

Loading a Picture

Before we leave this chapter, let's load a picture so you can see how it's done. Let's load the one called Venus.

❖ Venus is on the DeluxePaint Examples disk. If you don't have a hard drive (so that the files from the Examples disk are not in the DPaintV drawer on your hard drive), make sure your copy of the Examples disk is in one of your floppy drives.

■ Move your cursor to the top of the screen so that it is over the Title Bar.

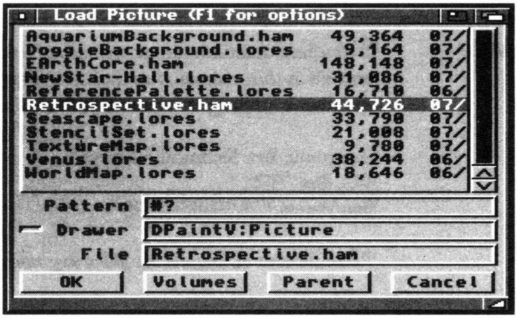
Whenever you move the cursor to the Title Bar, the cursor changes into a pointer.

■ Press and hold down the right mouse button.

The Menu Bar replaces the Title Bar and you see a row of menus. In addition, you see one of the menus extending down into the painting area.

As you move your pointer from left to right along the Menu Bar, one menu after another extends down, each one displaying its options. We'll be looking at each menu item in detail later, but for now we just need to use the first two options from the leftmost menu, the Picture menu.

■ Hold down the right mouse button, and drag the pointer all the way to the left on the Menu Bar to display the options in the Picture menu. Drag the pointer down to Load, and release the button. This displays the *Load Picture Requester.*



```
AquariumBackground.ham       49,364   07/
DoggieBackground.lores        9,164   07/
EArthCore.ham               148,148   07/
NewStar-Hall.lores           31,086   07/
ReferencePalette.lores       16,710   06/
Retrospective.ham            44,726   07/
Seascape.lores               33,790   07/
StencilSet.lores             21,008   07/
TextureMap.lores              9,780   07/
Venus.lores                  38,244   06/
WorldMap.lores               18,646   06/
```

Pattern: #?

Drawer: DPaintV:Picture

File: Retrospective.ham

FIGURE 1.3 LOAD PICTURE REQUESTER

- Click <VOL> Examples: in the requester to look at the contents of the Examples disk.

DPaintV:Picture appears in the Drawer edit field, and the names of four directories appears in the window.

- Click the Picture drawer in the requester.

If necessary you could scroll through these file names by dragging the scroll box up and down. Or you could scroll through the names one at a time by clicking the up and down arrows.

- Click on the file named Venus.LoRes.

Notice that when you click on the file name the name appears in the edit field beside File. If you wanted, you could type the file name into the edit field, though it is usually easier to click it.

- Click OK, or double-click the filename.

The disk drive spins for a few moments, and then the picture appears on the screen.

Quitting DeluxePaint

To exit DeluxePaint, choose **Quit** from the Picture menu. If you have made changes to the current image since it was last saved, DeluxePaint will ask whether you want to save your current changes. If you wish to save your changes before quitting, click Save. (You'll find instructions on saving documents in the next chapter.) To exit without saving changes to the image, click Don't Save.

Technical Support

If you have questions about operating DeluxePaint, and can't find the answers in this manual, our Technical Support department can help. If your question is not urgent, please write to us at the following address:

Electronic Arts Technical Support
P.O. Box 7578
San Mateo, CA 94403-7578

Please be sure to *include the following information* with any correspondence:

☐ the version of DeluxePaint you are using (You'll find this information in the About option of the Picture menu;
☐ the Amiga model you are using (1200, 2000, 4000, etc.);
☐ your Kickstart and Workbench version numbers;
☐ amount of random access memory (RAM) installed in your Amiga
☐ additional system configuration notes (for example, number of disk drives, type and make of monitor, printer, etc.).

If you would like to speak to someone directly, call us at (415) 572-2787 Monday through Friday between 8:30 am and 4:30 pm PST. Again, please be sure to have information about your version of DeluxePaint and your computer handy when you call. This information will help us help you more quickly.

If you live outside of the United States, you can contact one of our other offices.

In the United Kingdom, contact:
Electronic Arts Limited
P. O. Box 835
Slough SL3 8XU UK
Phone (01753) 546465

In Australia and New Zealand, contact:
Electronic Arts Pty. Ltd
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Southport, QLD 4215
Within Australia call:
Phone: (075) 711 811
Within New Zealand call:
Phone: +61 75 711 811
between 9am-5pm Eastern Standard Time

What's Next?

The next chapter, *Guided Tour (1)*, introduces you to many of the fundamental features of DeluxePaint V. We've designed the exercises there to be both easy and informative. If DeluxePaint is the first high-quality paint program you've used, we recommend that you go through all the exercises, in order. This will give you a solid foundation that you can build on when you move on to other parts of the program. Experienced graphic artists should at least page through the *Guided Tour*.

Chapter 2

GUIDED TOUR

Chapter Two: A Guided Tour (1)

The next two chapters take you on a tour of DeluxePaint V's basic features. They serve as an introduction to the program's painting tools, and provide several advanced painting techniques using simple step-by-step instructions.

If you are a relative newcomer to computer graphics, we recommend that you work through these chapters from beginning to end. If you are an experienced computer artist, you might quickly review the material to become familiar with DeluxePaint V's unique paint features. Once you are comfortable with the program, you can turn to Chapter 4, ***Painting Tutorials***, to learn more about graphic techniques, or go off on your own if you wish. Use Chapter 8, ***Reference***, to answer any questions that might come up.

In this chapter you'll learn how to:

☐ Start a new DeluxePaint V picture

☐ Select basic tools and paint with them

☐ Create, edit, and move objects

☐ Modify the screen, selected shapes, and tools

☐ Create a custom brush

☐ Save your work

❖ The step-by-step instructions in the Guided Tour, assume that you are using DeluxePaint on a floppy system. If you have installed all four DeluxePaint disks on your hard drive, *you won't have to insert your copies of the various program disks when we request them.*

Painting Screen

- Start DeluxePaint V. If you need a reminder of how to start the program, see *Starting DeluxePaint V* in Chapter 1.

- From the Choose Screen Format requester, select a Lo-Res mode with a 32 Colour palette and click Use.

After you have selected your screen format, the Painting Screen appears.

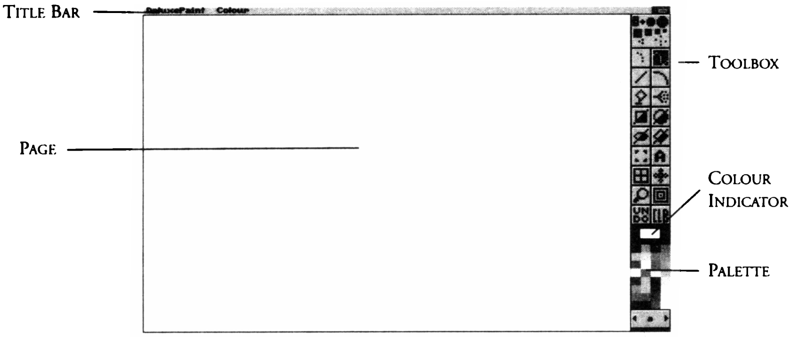


FIGURE 2.1 THE PAINTING SCREEN

The area to the left of the Toolbox is called the *page* or painting area. The normal page size is the same as the screen size.

❖ In the next chapter, ***Guided Tour (2)***, you'll learn how you can make the page larger than the screen. See *Page Size.*

Title Bar

The Title Bar lists the name of the program and the current brush mode.

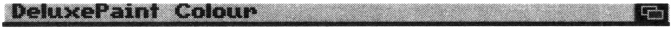


FIGURE 2.2 TITLE BAR

It also reports whether or not you are using certain program options. For example, if you choose to see the coordinates of the mouse, the current fill type, or angles of rotation, you can turn those features on, and see that they are active in the Title Bar. See *User Feedback in the Title Bar* in ***Reference*** for more detailed information.

Menus

The menus in DeluxePaint work just like other Amiga menus. To select an option from a menu, point to the Title Bar and press the right mouse button to display the Menu Bar.

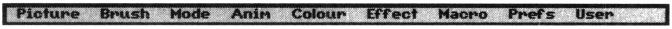


FIGURE 2.3 MENU BAR

Drag the pointer to a menu name to open that menu. Pull the highlight down to one of the menu options and release the mouse button to select that option.

Palette

You select the colour you want to paint with from the palette. The maximum number of colours in the palette depends on the screen format you are using. You'll learn more about screen formats and how they affect the number of colours available when you read the next chapter, or you can skip ahead and look in ***Reference*** under **Screen Format** in the Picture menu.

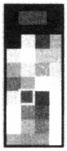


FIGURE 2.4 COLOUR INDICATOR AND LO-RES PALETTE

The Colour Indicator

The Colour Indicator looks like one rectangle sitting on top of another. The smaller rectangle shows the *foreground* colour. This is the colour your brush paints with. You can change this colour at any time by clicking one of the other colours in the Palette.

■ Move the pointer to one of the colours in the Palette and click.

Notice that any changes to the foreground colour are reflected in the Colour Indicator, and that the colour you selected is surrounded by a grey border in the Palette.

The larger rectangle, the page, and the first colour in the Palette, are all the same colour—black. Black is DeluxePaint's default *background* colour. If you were to paint with the background colour directly onto the background, it would appear to have no effect, as if you were applying black paint to a black page. Painting with the background colour is a way of erasing an image on the page.

You can change the background colour at any time by right-clicking one of the other colours in the Palette.

- Move the pointer to one of the colours in the Palette and right-click.

❖ Although the larger rectangle is now composed of the new background colour, the painting area (page) is still the prior background colour. This is because DeluxePaint assumes that you want to maintain the prior background colour as a "wash" over the current background colour. DeluxePaint will keep the prior background colour in place until you clear the painting area. Try it now.

- Click the Toolbox icon labelled CLR directly above the Palette. This clears the screen of the old background colour and replaces it with the new one.

UNDO

Before going any further, let's look at UNDO, one of the most important tools in the Toolbox. Clicking UNDO will generally "undo" your last painting action.

- Click UNDO now to bring back the old background colour.

UNDO reverses your last action, provided there has not been an intervening mouse click. For example, if you were to click CLR twice, UNDO would not reverse the clear command.

Painting with the Mouse

Now that you've seen how to choose colours from the Palette, let's use a brush to create our first freeform drawing.

- Select foreground and background colours from the palette. Choose contrasting colours, such as blue for the foreground and light grey for the background.

- Click CLR to cover your page with the new background colour.

- Move the pointer over to the page, where it turns into a cross-hair with a dot (the brush) in the centre of it.

- Hold down the left mouse button, and draw a small circle on the screen. Don't worry about quality for the moment. Fill in the circle with foreground colour. Release the mouse button to stop painting.

- Now press the right mouse button and draw all over your filled-in circle.

◆ The right mouse button has the effect of erasing your drawing, although what you are really doing is painting over it with the background colour. This is called *erasing to the background.*

REMINDER Follow this simple rule: use the left mouse button for painting with the foreground colour, and the right button for painting with the background colour. This parallels the rule we noted above for selecting colours from the Palette: select the foreground colour by clicking with the left button and the background colour by clicking with the right button.

Picking colours off the screen

So far you've been selecting your colours by clicking them in the Palette. DeluxePaint also lets you select colours directly from the screen. This is useful if you are working on fine details, or if you are working with many shades of the same basic colour. For example, if you are painting a rose using eight different shades of red, it might be easier to pick the colour you need directly from the screen rather than choosing it from the Palette.

- Click anywhere in the Colour Indicator and move the pointer back to the screen. The pointer changes to an eye dropper cursor. Point to a colour on the screen and click either the left or the right mouse button to select a new foreground or background colour respectively.

KEYBOARD EQUIVALENTS An even easier way to select a colour from the screen is to use a keyboard equivalent. Keyboard Equivalents are shortcuts for doing something you would otherwise do with the mouse. In this case, it might be tiresome to click the Colour Indicator every time you wanted the eye dropper to choose a colour from the picture. The shortcut is to press the comma (,) key to get the eye dropper, and then click a colour. By using the keyboard equivalent, you never have to move the cursor from your picture.

Practice painting with the mouse for a while and try selecting colours from the screen. Remember, you can always click UNDO to reverse your last action, or CLR to clear the screen and start afresh. As soon as you're ready, move on to the next section, where we will be examining DeluxePaint's collection of brushes and tools.

Toolbox

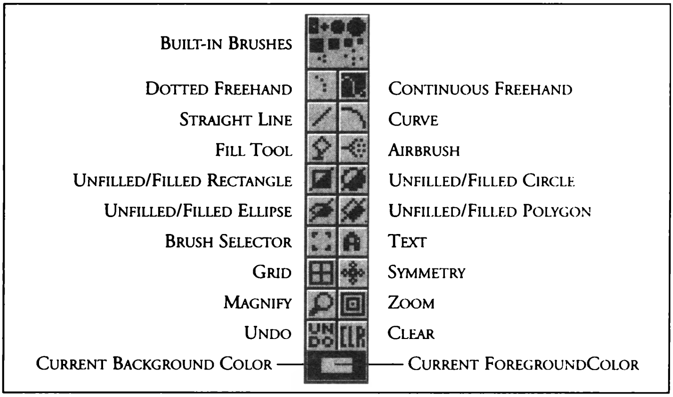

Built-in Brushes
Dotted Freehand
Continuous Freehand
Straight Line
Curve
Fill Tool
Airbrush
Unfilled/Filled Rectangle
Unfilled/Filled Circle
Unfilled/Filled Ellipse
Unfilled/Filled Polygon
Brush Selector
Text
Grid
Symmetry
Magnify
Zoom
Undo
Clear
Current Background Color
Current ForegroundColor

Figure 2.5 Toolbox

Built-in Brushes

So far you've been painting with the single pixel brush that is the default brush selected when you start the program. Pixel is short for picture element. A pixel is the smallest unit you can see on the screen.

The DeluxePaint Toolbox includes ten built-in brushes: four round ones, four square ones, and two made up of a number of separate pixels.

■ To select a brush, move the pointer over the desired brush shape and click.

Clicking a brush shape highlights it to indicate that it is the currently selected brush. As you'll see below, this convention applies to all the other tools in the Toolbox.

❖ You can enlarge or reduce the size of the current brush without continually returning to the Toolbox. Press the equals (=) key to increase the size of the brush. Press the minus (-) key to reduce the size of the brush.

Another way to size your built-in brush is to click on it in the Toolbox with the right mouse button. This gives you a size icon (four outward pointing arrows). With the cursor on the page, hold down the left mouse button and drag the mouse to size the brush. When you release the mouse button, your brush is the new size.

■ With your new brush selected, paint as before, using the left button to draw with the brush colour and the right button to draw (or erase) with the background colour.

In the next section we will look at the other drawing tools and see how they interact with the brushes.

The Painting Tools

The ten icons below the built-in brushes (in two columns of five) control the painting tools. Because any brush can operate with any given painting tool, you have a wide variety of combinations at your fingertips.

IT'S A RULE! *To select a painting tool, click on it.*

We'll describe the tools in order, moving left to right and top to bottom:

The Dotted Freehand tool allows fast freehand drawing. No matter how fast you draw, this tool keeps up with you, making it ideal for sketching out a shape quickly before concentrating on the intricate details. Note, however, that the faster you go, the bigger the gaps in your drawing. Once you have roughed out a shape, you can refine your image using some of the other tools at your disposal. Try drawing with it using some of the other brushes to get a feeling for how it works.

The Continuous Freehand/Freehand Shape tool paints unbroken lines, but it doesn't keep up with you if you draw fast. It's better suited than the Dotted Freehand tool for slower, more precise drawing.

- Try the Continuous Freehand tool with different brushes and see how brush size affects speed. The smaller the brush, the better it is at keeping up with your painting strokes.

Notice that the Continuous Freehand tool icon has a diagonal line running from its top right to its bottom left corner. This is because it is actually two tools in one — the top left one draws unbroken freehand lines, while the one at bottom right creates freehand shapes filled with the current foreground or background colour.

To create a filled shape:

- Click the lower right part of the Continuous Freehand tool and paint any shape.

When you release the mouse button, the shape you painted is filled with either the foreground or background colour, depending on which mouse button you pressed when you painted the shape. If you release the mouse button before you close the shape, DeluxePaint closes the shape for you with a straight line from your cursor position to where you began the shape.

The Straight Line tool lets you draw straight lines of any length and angle just by dragging the mouse.

- Select the Straight Line tool, and then move the cross hair to the point on the page where you want the line to begin.

- Now hold down the left mouse button to anchor the line at that point, and, drag the mouse to the point where you want the line to end.

When you release the button, you have a straight line in your selected brush colour and brush size. You can also draw straight lines with the background colour by using the right mouse button.

The Curve tool draws a curved line between two points on the painting area. It works just like the Straight Line tool except that it requires an additional mouse click to complete the shape.

- Select the Curve tool and move the cursor to the painting area.
- At the spot where you want to begin the curve, press the mouse button to anchor the shape. This is the first endpoint.
- Drag the line to the point where you want the curve to end (the second endpoint), and release the button.
- Slowly move the cursor away from the endpoints.

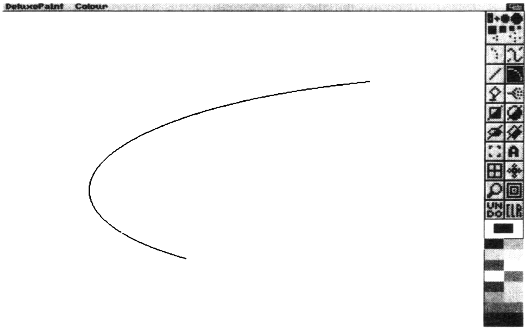


FIGURE 2.6 PAINTING CURVES

You'll notice that the line is still "active," and forms an arc between the endpoints. The line will curve to follow the cross hair wherever you move it.

- When the curve is the shape you want, click to freeze it at that position.

With a little practice, you'll be able to make curves of any shape and size, giving you much more flexibility than any collection of plastic templates with their limited selection of shapes and sizes. Try joining a series of curves to make flowing shapes with changes in curve direction.

The Fill tool fills any enclosed shape with the current foreground or background colour.

- Select the Continuous Freehand Shape tool.
- Draw an enclosed shape, a circle for example, with the largest round built-in brush.
- Select the Fill tool, and move the cursor (which now looks like a paint can) to the enclosed shape. Click to fill the shape.

You can fill with the current foreground colour by clicking the left button, or with the current background colour by clicking the right button.

❖ The Fill tool fills all the way to the boundaries of an *enclosed* shape. If the shape is not completely enclosed, the paint will leak out and fill the entire page. If this ever happens, you can stop the filling process by pressing the *space bar.* This aborts the current Fill command and returns the screen to its pre-command state.

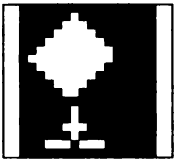


FIGURE 2.7 THE ACTIVATION POINT ON THE FILL TOOL

The paint can spout, the so-called activation point, is the small (one pixel) gap at the base of the Fill cursor. You must put this part of the tool inside the enclosed shape before you click to fill. With careful manoeuvring, you can fill a space as small as one pixel, so long as the point coincides with that space.

DeluxePaint has a full-featured airbrush with adjustable tips and nozzles. By using the Airbrush in combination with the different brushes, you can create a variety of effects, ranging from a fine one-pixel spray to a coarse spray made with the big brushes. In addition, you can choose between two distinct modes: the Old Style pixel "splatter" airbrush used in previous incarnations of DeluxePaint, and a new smooth Standard airbrush that more accurately emulates the painting style of a real airbrush. In the following chapter we will see how to adjust the width of the spray and other airbrush options, but for now let's try it as is.

■ Select the Airbrush and try painting with it using the various brushes.

Try it with the three and five-pixel brushes, and then try it with the big brushes. Note that, just like a regular airbrush, if you press down on the mouse button without moving the mouse, the paint continues to build up in one spot.

If you want to try the Standard Airbrush, click the Airbrush tool icon again Try painting with the Standard Airbrush — note how the paint is applied more smoothly, and the paint gradually becomes opaque as you spray an area.

The Rectangle tool lets you draw squares or rectangles, either unfilled or filled with the current brush or background colour. Like the Continuous Freehand tool, the Rectangle tool has a diagonal line running from its top right to its bottom left corner. Let's try making a few rectangles.

■ Click the top left half of the icon. Move the pointer onto the painting area, where it changes into a large crosshair.

- Hold down the left mouse button to anchor one of the corners of the rectangle, and drag the mouse away from the anchor point.

You can drag the mouse down and to the right (in which case the first button press anchors the rectangle's top left corner), or in any other direction you wish. In any case, the rectangle is completed as soon as you release the button. Note that it is unfilled and bordered by the current foreground colour. You can also create an unfilled rectangle bordered by the background colour by using the right mouse button.

- To create a filled rectangle, click the lower right part of the Rectangle icon and repeat the procedure above.

This time, the rectangles you create will be filled with either the foreground or the background colour, depending on whether your pressed the left or right mouse button.

Making Squares
If you hold down the Shift key as you draw with the Rectangle tool, you can constrain the rectangle so that its height and width are equal.

❖ Because the Amiga's pixels are not perfectly square, "constrained" rectangles will not appear square on the screen. You can compensate for this at the printing stage, or by selecting **Be Square** from the Prefs menu.

The Circle tool works like the Rectangle tool. Select the top left part of the icon to get an unfilled shape; select the bottom right to get a filled shape. Whether your circle is drawn in the foreground or background colour depends on which mouse button you press down while you draw.

Circles are painted from the centre outward, so it's easy to put a circle around anything just by starting to paint from where you want the centre of the circle.

The Ellipse tool works just like the Circle tool, except that the shape is still "active" after you release the mouse button.

- Select the Ellipse tool. Remember, top left for unfilled, and bottom right for filled shapes!
- Move the pointer to the painting area, and draw an ellipse by dragging the mouse. Release the button.
- Slowly move the mouse. Even though you have released the button, the ellipse continues to change shape as you move the mouse.
- When your ellipse is the shape and size you want, press down the mouse button and hold it there.

Now you can rotate your ellipse until it has just the right tilt.

- Drag your cursor around the ellipse and watch your shape rotate. When it is in just the right position, release the mouse button. The menu bar displays the angle of rotation.

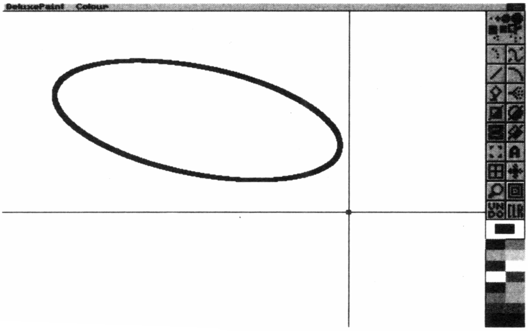


FIGURE 2.8 ROTATED ELLIPSE

When you complete your ellipse, the small cross hair changes into the large cross hair to let you know that DeluxePaint is ready for the next ellipse.

The Polygon tool lets you keep drawing straight lines until you have created a closed figure. Like the Rectangle, Circle, and Ellipse, the Polygon tool can create both filled and unfilled shapes. Here's how it works.

- Select the Polygon tool.

- Move the cross hair into the painting area and click once to anchor the starting point of your polygon.

- Drag out a line, and click a second time to complete the first line, as if you were using the Straight Line tool.

You'll notice that your cross hair is still connected to the first line by a second straight line.

- Click again to finish that line, and so on until you have created your shape.

To complete the polygon:

- Move the cross hair to your starting point, and click.

  If you are creating a filled polygon, it will be filled with the current foreground colour. If you right-click on the starting point, you'll fill with the current background colour.

TIP Because it can sometimes be a little tricky to end up on the exact pixel you started with, you can complete a filled polygon at any time by pressing the *space bar*. This automatically connects the last anchored point to the point of origin and fills it with the current foreground colour.

- Use the filled Polygon tool to draw several five-pointed stars.

Anything Can be a Brush

The Brush Selector is a special tool that is an essential part of DeluxePaint's versatility. With the Brush Selector, *anything can be a brush* — any piece of artwork or text you put on the screen.

- Select the Brush Selector, and move the cursor over to the painting area.

Your cursor is now a large cross hair that reaches to the edges of the screen. Let's make one of the filled stars you drew with the Polygon tool into a brush.

- Put the centre of the cross hair to the upper left of the star. Drag the cursor to the lower right of the star, as if you were using the Rectangle tool to enclose the star in a box. Release the mouse button.

When you release the mouse button, the cursor has a copy of the star attached to it. This star is your new brush!

- To stamp a star in a new location, simply click. There's no need to stop with one — go ahead and star-spangle the screen.

❖ If any parts of your brush consist of the current background colour, those parts will be transparent. In other words, whenever you pick up a brush, it's as if you are picking up only the non-background colours; any background colours in the brush will remain invisible even after you change to a new background colour. This means that you can create brushes with intricate outlines without fear of picking up a rectangle of the surrounding background colour.

Let's try one more trick.

- Click the Brush Selector again and select a star from the painting area. But this time use the right mouse button to drag the cross hair over the star.

Unlike the last exercise, which yielded two stars — one unmoving original, plus the one on your brush — this time you are picking up and moving just the one star. While the first feature lets you copy and move anything on the screen, the second lets you move images from one part of the screen to another, while leaving no trace behind.

DeluxePaint's text editor lets you place text anywhere on the page, and the Brush Selector lets you pick it up and reposition it if you don't get it quite right the first time.

To enter text on the page:

- Select the Text tool.
- Move the cursor to the page. The pointer turns into the text cursor.

- Click where you want to begin a line of text.

- Type on the keyboard.

  The text will automatically "wrap" around to the next line when it reaches the end of the line.

❖ You can delete text by pressing the backspace key, as long as you HAVE NOT clicked elsewhere on the screen. When you click elsewhere (the Toolbox for example), text becomes a bit-mapped image, and can no longer be edited as text.

Changing Colours

You can change the colour of your text as often as you like by choosing a different foreground colour from the Palette.

- Select a new foreground colour and type some more.

- To leave the text mode, click on another tool, or press ESC.

You'll learn how to use the Choose Font Requester to select different fonts, type sizes, and type styles in the next chapter, ***Guided Tour (2)***. See the section *Modifying Tools*.

The Grid lets you apply paint on the page in accordance with an invisible grid and restricts your painting tools to the grid points.

- If you need some room to work, click CLR.

- Select the Grid, and then click the Dotted Freehand tool. Now paint on the screen.

With Grid and the Dotted Freehand tool selected, you can paint only on the points of the grid, making it easy to fill the screen with a polka-dot pattern (we'll see other methods for pattern design later).

You'll learn how to adjust the spacing between the grid points in the next chapter, ***Guided Tour (2)***. See the section *Modifying Tools*.

The Symmetry tool lets you paint symmetrically over the entire page at the same time.

- Click the Symmetry tool. [If the Grid is selected from the previous exercise, turn it off]. Use the Dotted Freehand tool to paint whatever you like.

Your brush now consists of a number of mirror images of itself. As you move the brush around, all the mirror images move as well, producing an effect much like that of a kaleidoscope. When you paint, you are laying down a number of identical mirror images about a fixed origin. With all tools except the Dotted and Continuous Freehand tools and the Airbrush tool, the mirror images are drawn *after* you release the mouse button. With the Dotted and Continuous Freehand tools and the Airbrush tool, all the images are drawn at the same time.

You'll learn how to customise the Symmetry settings in the next chapter, ***Guided Tour (2)***. See the section *Modifying Tools*.

You can magnify any section of your work, and view it alongside the standard-sized image. To magnify a section of your work:

- Click the Magnify icon. When you move the cursor onto the page, it becomes a rectangular outline.
- Move the outline to the part of the image you want to magnify, and click.

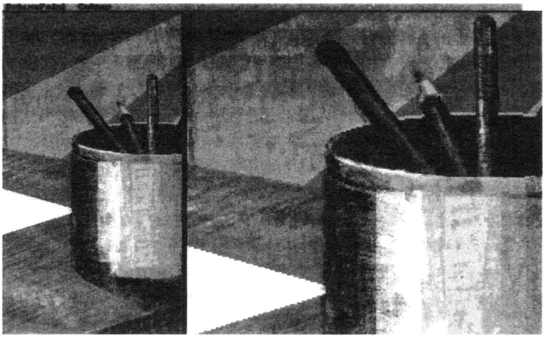


FIGURE 2.9 MAGNIFIED IMAGE

The part of the image included in the rectangle now appears magnified on the right part of the screen. You can use any tool to perform any function on either side of the screen. You can scroll around your image using the four arrow keys; this moves the image around under the "magnifying glass." In addition, by pointing your cursor anywhere on the unmagnified portion of the screen and pressing `n`, you can magnify that part of the picture.

Once you have magnified a part of your picture, you can increase or decrease the amount of magnification by clicking the Zoom tool.

- Click the Zoom icon to increase the magnification. Right-click the icon to reduce the magnification.

DeluxePaint's Magnify and Zoom tools let you carry out precision work on your pictures by magnifying each pixel up to 400 times its original size.

- To quit magnify mode, click the Magnify icon a second time.

Toolbox Summary

This completes our brief review of DeluxePaint's versatile range of tools. You'll find additional and more detailed information about every tool scattered throughout the manual, and gathered in ***Reference***.

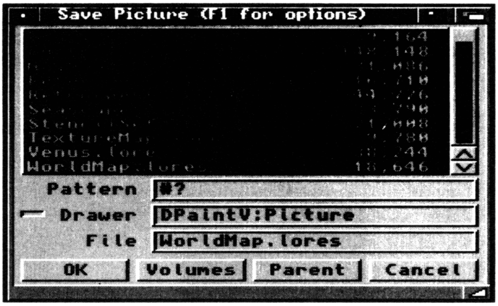
Before we continue our tour of DeluxePaint V in the next chapter [***Guided Tour (2)***], take a moment to learn how to save your artwork

Saving Your Work

It's important to learn how to save the pictures (or "files") you create. We'll begin by saving whatever you drew in the preceding sections.

- **Move the pointer up to the far left side of the Title Bar.**
- **Press and hold down the right mouse button. This exposes the Menu Bar and extends the Picture menu.**
- **Select Save.**

The Save Picture requester appears.



Pattern #?

Drawer DPaintV:Picture

File WorldMap.lores

FIGURE 2.10 SAVE PICTURE REQUESTER

Notice that this requester is like the Load Picture requester in almost every respect. You'll use the Save Picture requester to provide DeluxePaint with the information it needs to save your files in its proper classification. The Drawer edit box tells DeluxePaint which drawer to save the file in. By using drawers to classify your pictures, you can keep related images together, in the same way you keep related papers together in one file folder. For example, the setting might be DF1: lo-res, which means that the drawer exists on a disk in your second disk drive ("DF1") and that the drawer is named "lo-res."

The File edit box is where you enter the name of your picture the first time you save it.

If you want to save your current creation, this is your chance to do so.

- Insert a blank, formatted disk in any drive, for example, DF1.
- Click the Volume button. The name of the drive that contains the blank disk should appear in the window (<DEV> DF1:).
- Click on the disk name in the window. In our example DF1: appears in the Drawer edit box.
- Click anywhere in the File edit box and type in a name for your new file.
- Click OK.

The disk drive will spin for a few moments; when the red light goes out, the file is saved.

The next time you save this file (it's a good idea to save work in progress every 15 minutes or so, so that a power failure or other breakdown doesn't turn hours of work into a bitter memory), the Save Requester uses this same information, which means you won't need to type anything more unless you want to change the file name. You might want to do this to save it under another name, if you want to save each version as a separate file. In that case, you would click the File edit box as before, backspace over the old file name (or over those parts you wish to change) and type in the new name. Or you could just keep adding suffixes, such as 1, 2, 3, etc., to signify succeeding versions.

You can specify drawer names in the same way: click in the Drawer edit box, backspace over the old name, and type in the new name. You can open any drawer already on the disk, but you cannot create one from the Save Requester. See your *Amiga User Guide* for information on creating new drawers.

For more information on all the options available from the Load and Save requesters, see ***Reference***.

*Right now you might want to take a break. When you're ready, move on to the next chapter **Guided Tour (2)**, where you'll learn how to modify tools and work with many other powerful features of DeluxePaint*

Chapter 3

GUIDED TOUR (2)

This chapter continues the tour of DeluxePaint's painting tools. It concentrates on the program's sophisticated editing tools, describes tool modifiers, previews the Anim menu, and introduces several painting techniques using simple step-by-step instructions.

If you are a relative newcomer to computer graphics, we again recommend that you work through this chapter from beginning to end. If you have some experience with computer graphics software, you can probably become familiar with this material quickly. You can use this chapter to learn how DeluxePaint handles features you have encountered in other programs. Feel free to skip around and read only those sections that interest you at the time.

When you are comfortable with the program, turn to Chapter 4, ***Painting Tutorials*** to learn how the program creates and handles colour, or Chapter 5, ***Working with Perspective*** to learn more about DeluxePaint's graphic power. If you go off on your own, use Chapter 8, ***Reference***, to answer any questions that might come up.

In this part of the Guided Tour you'll learn how to:

☐ Create and edit custom brushes

☐ Manipulate the variety of program screen formats

☐ Modify tool functionality and operation

☐ Mix and cycle colours from the Palette

☐ Use keyboard equivalents *with the mouse button down.*

☐ Use the various painting modes

☐ Control AnimBrushes and Animpainting

WHAT YOU'LL NEED TO CONTINUE THE TOUR

To complete the examples in this section, you'll need your working copies of the DeluxePaint Program and Media disks. If you want to save your work, you'll need an initialised disk with a fair amount of available space for saving large files.

❖ The step-by-step instructions in the tour assume that you are using DeluxePaint on a floppy system. If you have installed all the DeluxePaint disks on your hard drive, *you won't have to insert your copies of the DeluxePaint disks when we request them.*

■ Start DeluxePaint and use the default screen format settings. If you already have the program running, we recommend that you restart so that the tools and option settings are all set to their defaults.

Custom Brushes

As we saw in ***Guided Tour (1)***, DeluxePaint's "anything can be a brush" feature lets you select any image on the screen and define it as a brush. If you wish, you can keep a selection of brush images on the spare page (use Spare in the Picture menu) and move them over to the main page by picking them up as brushes. Or you can have two spare custom brushes in RAM (use the **Spare** and **Copy/Paste** options in the Brush menu). In addition, you can load and save brushes as though they were pictures.

Creating a Rectangular Brush

Here's a reminder of how to create a brush out of an on-screen image:

- ☐ Select the Brush Selector.
- ☐ Move the cursor to the painting area. The cursor becomes a large cross hair.
- ☐ Drag the cross hair to form a rectangle around the image you want to pick up. When you release the mouse button, an exact copy of the image is attached to your cursor.

REMEMBER! When you drag the Brush Selector with the left button held down, DeluxePaint makes a duplicate of the image and attaches it to the cursor, while leaving the original image in place on the page. If you use the right mouse button to surround the image, the image itself becomes the brush, as if the original image had been lifted up off the page. This technique provides an ideal method for picking up objects and moving them around the page as you experiment with different compositions. See also *Fixing the Background*, in ***Painting Tutorials***.

Paint with your new brush or use it to create filled or unfilled shapes, just as you would with any of the built-in brushes.

Creating a Brush with an Irregular Shape

Though it's often convenient, you aren't limited to creating rectangular brushes. DeluxePaint lets you corral any image, so you can pick up shapes from a "crowded" background, and make a brush in any shape you wish. Here's how to corral an image:

- If the Brush Selector icon is highlighted, click the tool icon. If it is not selected, double-click it.

  The Brush Selector icon changes to a polygon shape to show that the polygon/corral brush selector is active.

- Click around the shape you wish to define, just as if you were making a polygon with the Polygon tool. Or click and drag to draw in freehand mode as you would with the Freehand drawing tool.

  As soon as you complete the polygon, the complex shape becomes your new brush.

Another useful method is the "magic wand" Brush Selector mode. To use the magic wand:

- Triple-click the Brush Selector to select it. The Brush Selector icon now looks like a magic wand.

  Clicking the left mouse button picks up the entire area contiguous with the selected pixel (i.e., the contiguous shape connected to the pixel without being broken by the background colour). For instance, if you click in the middle of a filled circle, the entire circle is picked up as a brush.

❖ The left button-right button convention works with both of the above methods, too. Corralling the shape with the left button duplicates the shape, while corralling with the right button lifts the shape off the background. As with the Polygon tool, pressing the *space bar* completes the polygon for you, so you don't have to search for the starting pixel in order to complete it.

The Transparent Colour

When you pick up a custom brush, some parts of your brush may be transparent. There are two rules for determining which colour is transparent:

☐ If **AutoTransp** in the Prefs menu is turned off (the default setting), or if any one corner of the brush is a different colour from the others, the current background colour is transparent.

☐ If **AutoTransp** is turned on and every corner of your brush is the same colour, that colour is transparent.

Let's see how these two rules work in practice with a couple of brief examples.

- To set up for our example, click black in your palette with the right mouse button to make it the background colour, and click CLR to clear your screen.
- Use the Dotted Freehand tool to scrawl randomly over the screen using several different colours.

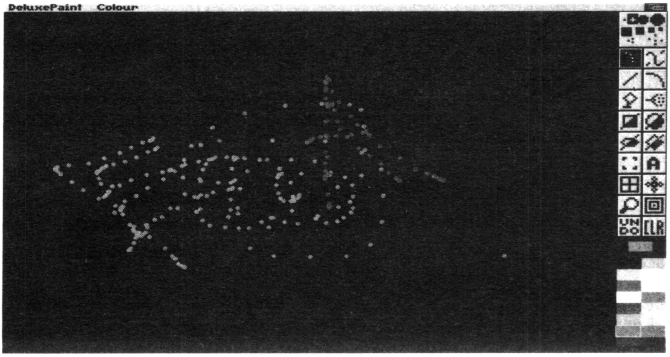


FIGURE 3.1 FIGURE IN PROGRESS

The Background Colour Is Transparent

Now you should have a black screen, because by default black is the background colour, with several colours scrawled over it.

- Click the Brush Selector icon, and move the cross hair to the painting area.
- Select a rectangular area that contains some black.

When you release the mouse button, the black areas of your brush are transparent because black was the background colour when you selected the brush. Move the brush around to confirm this: the painting shows through the areas where there used to be black. Any parts of the brush that consisted of background colour when the brush was first created remain transparent, even after you change background colours. But if you want to change the transparent colour, you can do that, too. We'll show you how in a moment.

❖ When the Solid Body option from the Brush menu is turned on, the translucent pixels of a custom brush that are surrounded by a colour change to the solid colour. The outside area of the brush remains transparent.

The Corner Colour is Transparent

Now let's see what happens when you select an area with all corners the same colour.

- Move the pointer to the far right of the Title Bar, and press the right mouse button.

  The Menu Bar appears. Drag the mouse left, and the Prefs menu extends down.

- Choose the **AutoTransp** option. Display the menu a second time to confirm that AutoTransp now has an check (√) beside it. This means that it's turned on.
- Double-click the Brush Selector icon to activate the polygonal brush selector.
- Select an area of any shape. Make sure that you always click on the same colour, but not on black (since this is the background colour and won't illustrate what we want to see).

This creates a brush in which the colour you clicked on is transparent because **AutoTransp** is turned on, and all corners of your brush are the same colour.

We used the polygonal Brush Selector for our example, but the **AutoTransp** option is especially useful for picking up a shape from any solid background without having to change the current background colour.

Changing the Transparent Colour

You can change which colour in your brush is transparent by choosing a new background colour and then choosing **Brush>Change Transparency** from the Colour menu. Let's try a quick example.

- Click the Brush Selector and select a rectangular area that contains some of the current background colour so that your brush has some transparent areas.

- Choose a new background colour by clicking on a colour in the Palette with the right mouse button.

Notice that simply changing the current background colour does not change the transparent areas of your brush. You accomplish that with the next command.

- Choose **Brush>Change Transparency** from the Colour menu.

The transparent areas of your brush change from the areas of the original background colour to the areas of the current background colour. You can do this as many times as you like to change transparent areas.

A Brush is a Little Picture

From the Brush menu you can treat brushes just like full pictures. You can **Load** and **Save** them just as you can other pictures. When you load a saved brush, it comes equipped with its own palette and ranges, the ones that were in effect when the brush was first saved. If the current picture is using a palette different from that of the newly-loaded brush, you can change the current palette to the brush's palette by selecting **Palette>Use Brush Palette** from the Colour menu. On the other hand, if you want to use the newly-loaded brush with the current palette, select **Brush>Remap** from the Colour menu. The "Load With Palette" check box gadget in the Options panel allows for automatic "Use Brush Palette" loading.

Other options in the Brush and Colour menus let you resize, reshape, and recolour brushes in various ways.

Your DeluxePaint Media disk contains a number of saved brushes. Let's load one now just to see how it works:

- Insert the Media disk into any drive. Select **Load** from the Brush menu. Click <VOL> Media: in the Load Brush requester.

- Click <DIR> Brush. The Drawer edit box reads Media:Brush.

- Double-click Bobsled and the file will load automatically.

- The Bobsled brush is attached to your cursor, but it's colours are not correct.

- Choose **Palette>Use Brush Palette** from the Colour menu. Select the Continuous Freehand tool and paint with the brush.

Do you see why this brush is called Bobsled? Feel free to experiment with some of the saved brushes. Select **Palette>Use Brush Palette** whenever you load a brush to ensure that you are seeing it as it was when it was saved.

- If you would like to see colour cycling in action, load the brush called Fireworks.

- Select **MultiCycle** from the Prefs menu.

- Select **Cycle** from the Mode menu.

- Select **Palette>Use Brush Palette** and then press the Tab key before you start drawing with it.

  "Fireworks" comes complete with colour cycling information, and is a spectacular example of the power of this feature. See Tutorial Two: Working With Ranges in the next chapter for more demonstrations of colour cycling.

Additional Features

The following are some additional features relating to custom brushes.

Handle

This feature, which is available from the Brush menu, allows you to specify where the cursor will sit in your custom brush. In the default setting the cursor sits at the centre of the custom brush. When you select **Handle>Rotate**, the brush handle moves to the lower right-hand corner of the brush. Each successive choice of the Rotate option moves the handle to a different corner, and then back to the center.

Once you have selected the handle attached to the corner, the brush handle attaches itself to the *ending* corner when you enclose a brush. For example, if you pick up your brush by dragging downward from left to right, the brush handle will attach itself to the lower right-hand corner, whereas if you pick up the brush by dragging upward from right to left, the handle will attach itself to the top left-hand corner.

The Handle feature is especially important in the perspective mode, because you can rotate a brush about its handle, whether the handle is at the centre or on one of the corners.

Perspective

DeluxePaint's **Perspective** feature (in the Effect menu) lets you rotate a brush about any of the three axes of three-dimensional space to define a plane of operation, and then work within that plane to create perspective effects. Perspective is a big subject to cover, so we've dedicated an entire chapter to cover it, ***Working with Perspective***. If you are interested in 3D painting or in 3D animation, be sure to work through Chapters 6 and 7.

Fast FB

Fast FB stands for Fast Feedback, and with **Fast FB** selected (in the Prefs menu), lines, filled shapes, and unfilled shapes are drawn with a single pixel line instead of the full custom brush until you finish drawing, at which point your shape is repainted with the custom brush. This makes for faster drawing. Try painting an unfilled rectangle with a custom brush both ways to see how Fast FB works.

DeluxePaint V Screen

Some of DeluxePaint's features affect the entire screen, while others, such as the tools and the brushes, affect the screen selectively. This section considers those features that have a screen-wide effect.

Hiding the Toolbox and Title Bar

DeluxePaint lets you paint on the entire screen, even under the Toolbox and the Title Bar.

- To remove these two items from the screen, press the F10 key. This removes them both if they are both present. Press F10 a second time to bring them back.
- To hide just the Title Bar (or to bring it back, if it's hidden), press F9.

Note that you can still access the Menu Bar even while it's invisible.

- Move the cursor to the top of the screen (except the upper left corner) and press the right mouse button to display the Menu Bar. You can now select any menu item in the regular fashion.

You can access the tools as well, even with the Toolbox hidden, through the keyboard equivalents. See ***Appendix B*** for a complete list of keyboard commands.

Pages

DeluxePaint gives you two separate pages with which to work. You could use one of the pages for creating background images, and the other for creating foreground images. You could then move parts from one page to the other to complete your composition. When you are working on a picture, the spare page is always the page you are not currently viewing. When you are working on an animation, the spare page is identified with the word Scratch in the menu bar; this page can be larger than the screen. This makes it possible to create scrolling backgrounds and such with the new Camera Move requester. As we shall see in a moment, the spare page is not entirely independent of the other page or animation frames.

Switching Pages

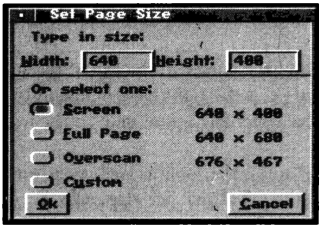
When you first open a new file or load a picture from disk, DeluxePaint opens one of the two pages.

- **Load** any image from the Picture drawer on your copy of the DeluxePaint Examples disk.
- To move from one page to the other, choose **Spare>Swap** from the Picture menu, or press j on the keyboard to "jump" to the other page.

In addition, because the Toolbox is not really part of the page (but actually sits "above" it), whatever tools you had selected before you switched will still be selected after you switch pages. This way, you can retain the same tool settings, giving you continuity as you work. Note that this continuity rule does not apply to the Fix Background and Stencil commands, which do not carry over from one page to the other. See the following section for information on fixing the background, and Tutorial Three: The World of Stencils in the next chapter for exercises involving the Fix Background and Stencil features.

Page Size

DeluxePaint lets you work on page sizes ranging from 320 pixels wide by 200 pixels high and up. The page size limit depends on your screen format, memory size, and the number of colours in your palette. Note, however, that your page size can never be smaller than the current screen resolution. For example, if you are using HiRes 640x400 screen format, your page cannot be smaller than 640x400. In addition to the three pre-set page sizes (Screen; Full Page; Overscan), DeluxePaint lets you specify any height and width through the Set Page Size requester (by selecting Custom and entering width and height pixel settings). To display this requester, choose **Page Size** from the Picture menu.



Set Page Size

Type in size:

Width: 640 Height: 400

Or select one:

- ● Screen 640 x 400
- ○ Full Page 640 x 600
- ○ Overscan 676 x 467
- ○ Custom

FIGURE 3. 2 SET PAGE SIZE REQUESTER

If you are working on a page size larger than the screen, you can preview the entire page at any time by selecting the **Show Page** command from the Picture menu. Your current work area will appear surrounded by a rectangle. You can move this rectangle to work on another area by holding down the left mouse button, dragging the rectangle, and releasing the mouse button when the area you want to paint is enclosed. You can return to your current page without moving the rectangle by pressing the space bar.

Scrolling the Page

If you are working on a page that is larger than the screen, you can also scroll the page with the arrow keys on the keyboard. Think of them as moving the screen rather than the picture; pressing the down arrow moves the screen down, so it looks like the page is moving up. To scroll the page in screen size increments, hold down the Alt key and press the arrow keys.

A more efficient way to scroll the page is to place your cursor over the area you want to move and press the n key. If the page can scroll that far, the area under your cursor will be centred in the screen. If the page isn't big enough to centre the area, it will move as far as possible.

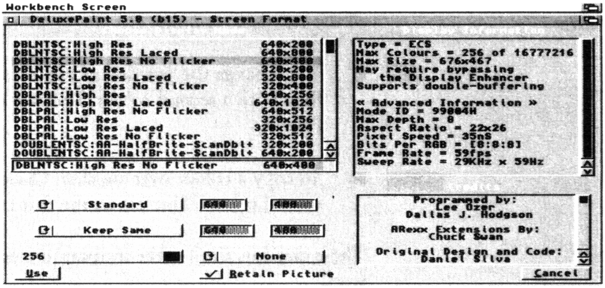
Screen Resolutions

DeluxePaint supports many different screen resolutions. You can switch from one to another even during a single work session, but be aware that changing formats in the middle of a job can result in loss of information (such as your current brush, the spare page, the last requester used, etc.). *It's important to save your work before changing screen formats.*

❖ You should develop the habit of saving your work every 15 or 20 minutes in any case, but it becomes especially important to do so if you are about to change formats.

As we noted in ***Guided Tour (1)***, you're asked to select a screen format each time you start DeluxePaint, through the Choose Screen Format requester. In addition, you can display the Choose Screen Format requester at any time by selecting **Screen Format** from the Picture menu. Each screen format has its own limitations and memory requirements.

❖ Please note that to switch on the 24-bit backing store and work with true colour, you need 4MB of free RAM.



```
Workbench Screen
DeluxePaint 5.0 (b15) - Screen Format

DBLNTSC:High Res                       640x200
DBLNTSC:High Res Laced                 640x800
DBLNTSC:High Res No Flicker            640x400
DBLNTSC:Low Res                        320x200
DBLNTSC:Low Res Laced                  320x800
DBLNTSC:Low Res No Flicker             320x400
DBLPAL:High Res                        640x256
DBLPAL:High Res Laced                 640x1024
DBLPAL:High Res No Flicker             640x512
DBLPAL:Low Res                         320x256
DBLPAL:Low Res Laced                  320x1024
DBLPAL:Low Res No Flicker              320x512
DOUBLENTSC:AA-HalfBrite-ScanDbl+       320x200
DOUBLENTSC:AA-HalfBrite-ScanDbl+       640x200
DBLNTSC:High Res No Flicker            640x400

Type = ECS
Max Colours = 256 of 16777216
Max Size = 676x467
May require bypassing
  the Display Enhancer
Supports double-buffering

« Advanced Information »
Mode ID = 99004H
Max Depth = 8
Aspect Ratio = 22x26
Pixel Speed = 35nS
Bits Per RGB = [8:8:8]
Frame Rate = 59fps
Sweep Rate = 29KHz x 59Hz

Programmed by:
Lee Ozer
Dallas J. Hodgson

ARexx Extensions By:
Chuck Swan

Original Design and Code:
Daniel Silva
```

FIGURE 3.3 SCREEN FORMAT REQUESTER

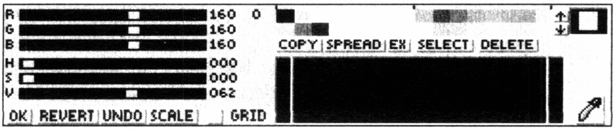
Palette

This section introduces you to the basics of the Palette. You can learn about the colour requesters by working through the tutorials in the next chapter or by reading the relevant parts of the ***Reference*** section (see **Palette** in the Colour menu).

Colour mixer

The Colour Mixer lets you mix your own custom set of colours from the total number of available colours (4096 on non-AGA machines, 16.7 million on AGA Amigas, or 16.7 million on any Amiga with backing store turned on). You can mix colours using either the RGB (Red, Green, Blue) or HSV (Hue, Saturation, Value) colour systems. The number of colours you can work with at any one time is dependent on the screen format and number of colours you selected in the Screen Format requester. See the Display Information box in the Screen Format requester for more information on your currently selected screen mode.

■ To display the Colour Mixer, choose **Palette>Mixer On** from the Colour menu, or right-click the Colour Indicator.



R 160
G 160
B 160
H 000
S 000
V 062

FIGURE 3.4 COLOUR MIXER

You can quickly modify the currently selected colour on any of the three variables (RGB or HSV) by dragging the appropriate sliders left or right.

- To select more than one contiguous colour, click to select the first colour, and then Alt-click on the last color. All the colours between the two colors are selected.
- To select more than one discontiguous colour, click to select the first colour, and then Shift-click on any other colours you wish to select. Only the colours you click are selected; the colours in between the selected colours aren't selected.

Arranging Colours in the Palette

EX (for "Exchange") and COPY let you swap or copy colour from one part of the Palette to another.

EX

- To exchange the position of two colours: Click a colour, click EX, and then click a second colour. The two colours exchange places on the Palette.

COPY

- To copy a colour over another: Click a colour, click Copy, and click a second colour. This copies the first colour into the second

These two functions make it easier to create the *colour spreads* for your work.

Creating Spreads

The Palette Requester lets you create colour spreads to give you subtle shades of the same hue or equally spaced gradations across hues.

SPREAD

- To create a spread of colours, click the first colour for your spread, click SPREAD, and then click the last colour for the spread.

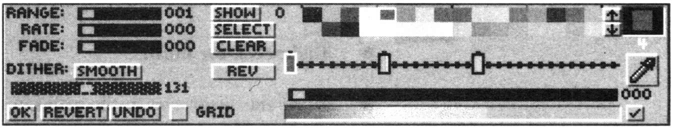
DeluxePaint looks at the first and last colours in the spread and at the number of steps in between, and then calculates the series of intervening shades. For example, if your first colour is blue and your last colour is yellow, DeluxePaint calculates the intervening shades and hues, to give you a series of blues, blue-greens, greens, yellow-greens, and yellows. Unlike traditional colour mixing, if your modifications are not to your satisfaction, you can always reverse the last change by clicking UNDO, or you can cancel all the changes you made by clicking Revert.

Defining Ranges

Good colour ranges are important for effective Colour Cycling, Gradient Fill, and some Painting Modes. Colour Cycling and Gradient Fill are treated in the *Tutorial Two: Working with Ranges* in Chapter Four, and you'll find information about Painting Modes later in this chapter and in the ***Reference***. Right now, we'll take just a quick look at where to define ranges.

You can define up to eight colour ranges of up to 256 individual colours each (in AGA modes) and assign a cycling speed (RATE) to each range.

- Choose **Ranges...** from the Colour menu. The Range requester replaces the Palette at the bottom of the screen.



RANGE: 001
RATE: 000
FADE: 000
DITHER: SMOOTH

FIG. 3.5 RANGE REQUESTER

The Range requester lets you put colours from your palette along a bar to define a range. This flexible way of defining ranges lets you place the colours in different orders from how they appear in the palette. Also, it is now easier to use the same colour in more than one range. You'll learn how to use this requester in the next chapter.

alette and Screen Formats

DeluxePaint works from a colour universe that contains as many colours as your Amiga supports (4096 on non-AGA machines, 16.7 million on AGA Amigas, or 16.7 million on any Amiga with backing store turned on). The maximum number of colours available in each format is listed below. The number of colours you can have at any time depends on your available memory and computer model; if your page is large or you have a large brush, you may not be able to choose the maximum number of colours.

Lo-Res	256 (AGA) or 32 (non-AGA) colours in standard LoRes (64 if your computer supports Extra Halfbrite; 4096 in the special HAM mode)
Med-Res	256 (AGA) or 16 (non-AGA) colours
Interlace	256 (AGA) or 32 (non-AGA) colours in standard LoRes (64 if your computer supports Extra Halfbrite; 4096 in the special HAM mode)
Hi-Res	256 (AGA) or 16 (non-AGA) colours
HAM	262000+ (AGA) or 4096 (non-AGA) colours
24-bit Backing	16.7 million colours available

See the ***Reference*** for general information on the various screen formats. ***Appendix D: Amiga Display Modes*** gives a technical explanation of the relationship between screen formats and the number of colours available. See also ***Appendix A: Memory Management*** for more information on memory usage.

odifying Tools

You've already learned that you can activate any tool by clicking its icon in the Toolbox. A tool remains active until you select another tool or, in some cases, deselect it by clicking the icon a second time. Examples of the latter kind of tool are the Grid and the Symmetry and Magnify tools, which are toggled on and off by each mouse click.

In most cases, right-clicking a tool icon lets you modify some fundamental aspect of that tool. The following summarises the effects of right-button mouse clicks on the tools in the Toolbox:

Built-in brushes

You can change the size of any of the built-in brushes in the Toolbox.

- Right-click the brush.
- Move the cursor over to the painting area. The cursor changes to the size icon (four outward-pointing arrows).
- Hold down either mouse button and drag diagonally to adjust the size of the brush.

Airbrush

You can adjust a number of Airbrush settings with the Airbrush Settings requester.

- Right-click the Airbrush icon. The Airbrush Settings requester appears

The available options are:

Airbrush Type
Choose between Old Style or Standard. Old Style is the airbrush used in previous incarnations of DeluxePaint; pixels of the foreground colour are randomly sprayed within the radius setting of the airbrush. For Standard, the program paints similar shades of the foreground colour to create a seamless, blending effect. In Standard mode the colours you paint *with* are affected (tinted) by the colour you paint on.

Radius
Use the slider or text box to set the airbrush radius from 1–100 pixels. The larger the number, the larger the sprayed area.

Flow
Changes the opacity of paint sprayed when Standard mode is selected. Use the slider or text gadget to set a value from 1–100, with 100 being maximum opacity.

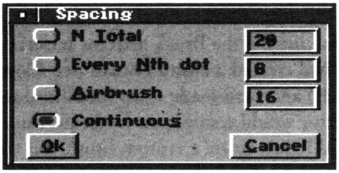
Size
This button lets you resize the nozzle.

- Click the button and then move the cursor over to the painting area. The cursor changes to the size icon.
- Hold down either mouse button and drag diagonally to adjust the size of the solid circle, which represents the spray area.

✣ You can also adjust the airbrush size while painting by typing + or - t increase or decrease the size.

Straight Line, Curve, and Unfilled Shape Tools

A right-click on any of these tools brings up the Spacing requester.


Spacing
Ok
Cancel

○ N Total 20
○ Every Nth dot 8
○ Airbrush 16
● Continuous

FIGURE 3.6 SPACING REQUESTER

The Spacing requester lets you control the distance between "splats" in your lines. This lets you choose whether a line is continuous or dotted. If you want a dotted line, you can define the line in terms of the total number of dots (N Total) or by the number of pixels between dots (Every Nth dot).

Choose Airbrush to use the Airbrush tool with any of the tools that uses the Spacing requester. This is especially useful for smooth airbrushed curves and circles.

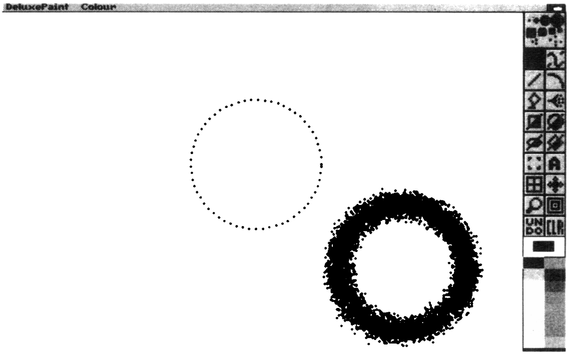
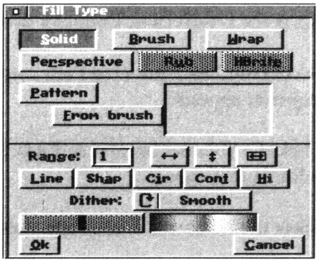

DeluxePaint Colour

FIGURE 3.7 CIRCLE DRAWN WITH DIFFERENT SETTINGS IN THE SPACING REQUESTER

Fill and Shape Tools

Right-clicking any of these icons brings up the Fill Type requester.


Fill Type
Solid
Brush
Wrap
Perspective
Rub
HBrite
Pattern
From brush
Line
Shap
Cir
Cont
Hi
Ok
Cancel

Range: 1

Dither: Smooth

FIGURE 3.8 FILL TYPE REQUESTER

This requester lets you choose one of several fill types for your fills and filled shapes. Many features of the Fill Type Requester are covered in *Tutorials Two: Working with Ranges* and in the ***Reference*** section.

Brush Selector

Right-clicking the Brush Selector restores the last custom brush. Thus, if you had created a custom brush (see *Custom Brushes* in this chapter for details) and then made some modifications, right-clicking the Brush Selector would restore you to the previous custom brush. This feature is also useful if you create a custom brush and then select a built-in brush. Right-clicking the Brush Selector restores the custom brush.

Text tool

Right-clicking the Text tool displays the Choose Font requester. You use this requester to choose fonts and styles for the Text tool to use.

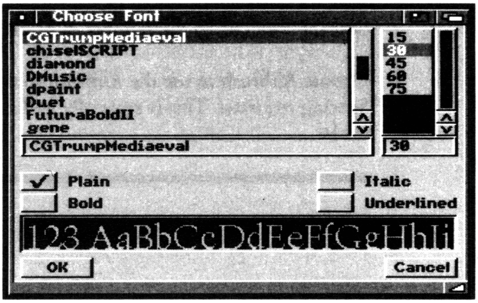

Choose Font
CGTrumpMediaeval
chiselSCRIPT
diamond
DMusic
dpaint
Duet
FuturaBoldII
gene
15
30
45
60
75
CGTrumpMediaeval
30
✓ Plain
Bold
Italic
Underlined
123 AaBbCcDdEeFfGgHhIi
OK
Cancel

FIGURE 3. 9 AMIGA CHOOSE FONT REQUESTER

- To select a different type font, size, and/or style, display the Choose Font requester.

- Click a font from the window. Choose from the available font sizes by clicking on the up and down arrows. Click any of the Style buttons (Bold, Italic, Underline), to apply any font style you want. If you like the results, click OK.

A special feature of the Choose Font requester is the ability to load fonts from a fonts directory on a different disk. To do this, use the Font Dir... command from the Prefs menu. In addition, your Examples disk contains two special coloured fonts.

- Insert the DeluxePaint Examples disk in any drive.

- Select **Font Dir...** from the Prefs menu. The Choose Font Directory requester appears.

- Click the Volumes button, and select the Examples disk from the list of volumes that appears.

- Select the Karafonts drawer, and then click OK to select the drawer.

Right-click on the Text tool, and the Choose Font requester appears. In a moment, the fonts list from your Examples disk appear in the Choose Font requester. Let's use one of the fonts.

- Click the font named ChiselScript and click OK. A message asks if you want to use the font's palette. Click Yes. Place your text cursor and type away!

If you want to move your text once it's on the screen, use the Brush Selector to pick it up and move it around. If you are adding text to a picture, there are two good tips you should know: If you fix the background (**Effect>Background>Fix**) before you type the text, you'll be able to move the text without harming your picture. Another way to do this is to jump to the Spare page to type your text and then pick it up as a brush to place on your picture.

Grid and Symmetry Tools

Right-clicks on these tool icons let you modify aspects of gridding and symmetry.

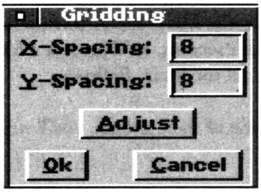
You can also control the spacing between the points.

- Click on the Grid icon to turn on the grid

- Use the Dotted Freehand tool to paint in the painting area. The dots show you the current position of the grid.

- Right-click the Grid icon to bring up the Gridding requester. You can now set the spacing for both the X and the Y coordinates by typing in the actual spacing in the calibration boxes. The spacing is calibrated in pixels.

- Click in the X-spacing edit box, delete or backspace to remove the existing value, and then type in the new value — try 20. Do the same with the Y-spacing. Click OK.



X-Spacing: 8
Y-Spacing: 8

FIGURE 3. 10 GRIDDING REQUESTER

- Now try painting with the Dotted Freehand tool to see how the grid has changed.

You can also recalibrate the gridding by using a visual method.

- Display the Gridding requester.

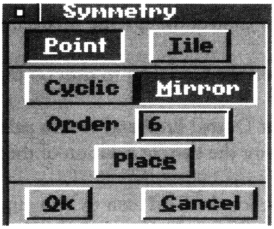
- Click Adjust.

- You are returned to the page with a cursor that looks like a matrix. This matrix represents the current grid values in graphic form. To change the values, press and hold down the left mouse button, drag the mouse until the matrix is the desired size and shape, and then release the button.

The new grid is based on this matrix. You can also reposition the points of the grid using Adjust: move the matrix so that its cells are in the desired position and click the left button.

If you are in perspective mode and you right-click the Grid icon, the Perspective requester appears. This requester lets you set a grid for three-dimensional space and also lets you choose other Perspective settings. (See *Chapter Five: Using Perspective* or the description in *Reference* of the **Perspective>Settings** option in the Effect menu.)

You can change the settings for the type of symmetry you use by right-clicking the Symmetry tool. This brings up the Symmetry Requester.



Order 6

FIGURE 3.11 SYMMETRY REQUESTER

You'll find a brief explanation of each of the options in the Symmetry requester in *Reference*. For now, if you feel adventurous, try changing the settings and painting with different shapes.

Painting Modes

The options in the Mode menu control the way your brush applies paint to the page. In this section, we'll look at a few of the modes. You'll find information about all modes in *Reference*.

To look at some of these modes, you'll need paint on the screen, so let's load a picture.

- Load the picture Venus from the Art disk.

First let's look at a couple of modes that change paint already on the page — these are **Smear**, **Shade**, **Blend**, and **Smooth**.

- Select the largest round built-in brush, the Dotted Freehand tool, and Colour 0 (black).
- Choose **Smear** from the Mode menu, move the brush down to Venus' eye, hold down the left mouse button, and drag back and forth across her eye.

Notice that instead of laying down black paint, your brush smears the paint already on the screen. Smear mixes the existing pixels rather than changing their colours.

- Choose **Smooth** from the Mode menu, hold down the left mouse button and drag your brush once along the edge of Venus' chin.

Again, the brush uses colours other than black to paint with. Smooth reduces the contrast between two adjoining areas by painting intermediate shades along the boundary of the two areas. Smooth looks at the current palette and finds the colours closest to the ones under the brush. If the palette contains a wide selection of colours close to the ones under the brush, it will have more colours to choose from. In our case, there are many colours between the dark brown of the chin line and the yellows of Venus' face, so DeluxePaint does a good job of smoothing the edge.

Some of the painting modes change the way the colours of your brush are used. In particular Matte and Colour determine whether a custom brush will paint with the colours in the brush, or the current foreground colour. Let's see how that works.

- Click CLR to clear the screen.
- Choose **Load** from the Brush menu and load the brush named MultiCycleMe from the Brush drawer of your Examples disk. Choose **Palette>Use Brush Palette** from the Colour menu.

❖ When you load a custom brush, your painting mode is automatically changed to **Matte**. Matte paints with the colours in your custom brush.

- Drag the custom brush straight down your page to paint a broad stripe of several greenish blues and reds.
- Now choose **Colour** from the Mode menu and drag the brush down again.

This time your stripe is all one colour, because Colour uses the current foreground colour and the shape of your custom brush to paint.

- Choose **Cycle** from the Mode menu and drag another stripe.

Now your brush paints a stripe with bands of colour running horizontally. Notice that the colours change in the order of the colours in your palette. **Cycle** uses the ranges in the Range requester and cycles the colours as it paints. This is a good example of where ranges affect the way a painting mode works.

- Finally, choose **MultiCycle** from the Prefs menu. Select the Straight line tool and drag a line straight down from the top of the page.

MultiCycle tells DeluxePaint to cycle each colour in your brush individually when you use the Cycle mode. Since your brush is made up of many colours, they create a many coloured pattern. Press the TAB key to see how psychedelic you can paint with colorcycling and MultiCycle.

DeluxePaint Smooth

FIGURE 3.12 VENUS

Extra-Halfbrite Mode

Hbrite mode is only available if you are using 64 colours. So, let's change our screen format now.

- Choose **Screen Format** from the Picture menu. In the requester, select a Halfbrite mode and click Use.

Now your palette should contain 64 colours. The first 32 colours are the same colours you had in Lo-Res format. The second 32 colours are Halfbrite equivalents of the first 32.

Let's take a look at how Hbrite paints.

- Choose Load from the Picture menu and load the picture named New Star-Hall from the Picture drawer of your Examples disk. When the requester asks if you want to change the screen format, click NO.
- Now select the largest built-in brush and the Dotted Freehand tool. Choose Hbrite from the Modes menu. Scrawl anywhere on the picture using the left mouse button.

Notice that when you paint with the left button in Hbrite mode, any colours that are the first 32 in your palette are changed to their Halfbrite equivalent. This makes it look as though your picture is getting darker. Hbrite mode is a great way to add shadows to your pictures.

- Now scrawl over your picture again, but use the right mouse button.

Any areas of your picture that are already in one of the first 32 colours of your palette are unaffected by your paint, but areas that are painted with any of the 32 Halfbrite colours become lighter.

We've demonstrated only a few of the painting modes in this section. Be sure to take the time to review the description of the modes in ***Reference.***

Clever use of painting modes can save you time and help you create interesting effects.

- Before you move on to the next section, choose Colour from the Mode menu. This is the default mode.

Keyboard Equivalents

Most artists have found that DeluxePaint's extensive list of keyboard equivalents helps them work more quickly and efficiently. We are committed to making the keyboard commands an integral and important feature of DeluxePaint. The most important thing to remember about our keyboard equivalents is that you can use most of them *while the mouse button is down*!!! This means that you can use multiple features simultaneously.

A simple example of where using the keyboard equivalents comes in handy is the case of trying to pick up a brush very precisely. Here's what you might do:

Click the Brush Selector. Move the cross hair to the area you want to magnify and press m to turn on magnification. Begin surrounding the area you want to pick up and, while the mouse button is down, press **m** again to turn off magnification. Move the cross hair to the other corner of the area you want to select and press m again to magnify for precise selection. Finally, release the mouse button and you have your brush.

This is just one example. There are more throughout the program. In particular, when you begin working with animation, you'll find that the keyboard equivalents let you do many things that otherwise would be impossible. If you ever need to use a menu option or other command while the mouse button is down, go ahead and try the keyboard equivalent; it usually works.

You'll find a complete listing of keyboard equivalents at the back of this manual in ***Appendix B.***

Looking Ahead

Before you move on to the next chapter, or off on your own to explore DeluxePaint, we want to introduce you to a few of the interesting and powerful features of the program. You'll find more information about these features throughout the manual.

Fixing the Background

This section shows a very powerful feature that lets you paint on your picture without fear of accidentally messing it up.

- Load the picture WorldMap from your copy of the Examples disk. If you are prompted by a screen message asking you if you want to change the screen format or the number of colours, click Yes.

- Choose **Background>Fix** from the Effect menu.

What you have just done is remarkably simple, and yet remarkably powerful. You have fixed the picture onto the background so that it cannot be removed. Try it.

- Click CLR and see what happens. That's right — nothing.

The picture is fixed, which means you can draw over it any way you like.

- Select a thick brush and scrawl on the picture. Do it with the airbrush if you like. Then scrawl using the right mouse button and see what happens.

When you have the background fixed, painting with the right mouse button is truly erasing! Note that you can paint on the picture and then fix the background again to fix the new version. You can erase everything you painted since the last fix with a single click. And you can "unfix" the background as easily as you fixed it: just choose **Background>Free** from the Effect menu. This restores everything back to normal, so that clicking CLR clears the entire picture.

We'll look more closely at this feature in the next chapter when we look at custom brushes and the way they interact with the background. Meanwhile, feel free to experiment further with this feature. Art restorers should have it so easy!

In particular, the combination of right-button brush selection and Fix Background lets you lift any complex shape off a fixed background (provided the shape was applied after the background was fixed), without lifting up any of the background. DeluxePaint preserves in memory all those parts of a fixed background that are covered by unfixed shapes, which means that you can move the shapes around the page and uncover the previously hidden background.

Animpainting

We realise that you may have just started painting on a computer for the first time. But we'll take a daring leap forward to show you animating on a computer. Right now we'll show you a special kind of painting on multiple frames. Just follow the steps carefully, and you'll see some wonderful results.

- Choose **AnimBrush>Load** from the Anim menu. Insert the Examples disk in any drive and click the Volumes button so that Examples disk appears in the window.
- Click Examples to select the disk volume.
- Click the AnimBrush drawer in the window.
- Double-click the file named "Sweep.anbr".

When the requester closes, you'll have an AnimBrush of a Karate black-belt attached to your cursor. An AnimBrush is special in that it is made up of many cels (short for celluloids) that flip as you paint.

- Choose **Palette>Use Brush Palette** from the Colour menu to see the brush in its own palette.
- Click the brush down once.
- Move the mouse, and click the brush down again.

Notice that now your brush looks different. Each time you click the button the brush moves to the next cel.

- Paint freehand across the screen to see all of the cels of the AnimBrush.

Animation Frames

Above, we had you painting with an AnimBrush on a single screen. Now let's look at what happens if you paint one cel of the brush on each of several screens. This is one way to create animations in DeluxePaint V.

- Select dark blue as your background colour and clear the screen.
- Choose **Frames>Set #** from the Anim menu. (The Set Frame Count requester appears.) Enter 20 in the Count field. (You do this by clicking at the right end of the field, backspacing over the existing number, and typing the new number.) Click OK.

In a flash, you have 20 animation frames to paint on. Notice the numbers 1/ 20 on the left side of the Title Bar. This tells you that you are on frame 1 of 20 frames. Let's paint!

Animpainting

Animpainting is simply the process of painting at the same time the animation frames flip. In most ways it is like regular painting, since DeluxePaint flips the frames for you.

- Right-click on the Straight Line tool to display the Spacing Requester. Click the N Total button to highlight it. Click in the edit field next to N Total and set the number to 20. Click OK to exit the requester with the new settings.

Now your lines will paint exactly 20 stamps of the brush between the start and end points of the line. Using the N Total option of the Spacing requester is an effective way to animate across a simple path, as you'll see in a moment.

- Press Shift-7 to set your AnimBrush back to its first cel.
- Select the Straight Line tool. Hold down the Alt key, and drag out a line from left to right across the screen.

When you let go of your line and the Alt key you'll see DeluxePaint paint your AnimBrush on each frame of your 20 animation frames.

- When DeluxePaint is finished painting, press 5 on the keyboard.

The Karate expert shows all of his best moves. Press 4 if you want to see your animation play continuously. If the animation moved too quickly, press the left arrow key repeatedly to slow down the play rate. Press the Spacebar to stop the animation.

Textures and Media

A powerful new feature of DeluxePaint V is the ability to mimic natural textures and media. Using these tools, you can duplicate the effect of drawing with traditional media such as water-colour on rough paper, for example. While media and textures work best in higher colour modes, they can be used in any screen mode.

Here's a quick demonstration to get you started. First, we'll load and use a background texture.

- Select **Texture>Load...** from the Effect menu. The Load Texture requester appears.
- Click on the Textures drawer (in your DeluxePaint directory or from the Media disk), and select the Heavycanvas texture file. Click OK.

When you select a texture, the screen's appearance doesn't change until you paint the texture onto it.

- Select a light grey foreground colour and a background colour of black to show the canvas texture.
- Use the filled square tool to paint the texture onto a portion of the screen.

You can actually see the background texture on the screen, and when you paint on it your brush will react as if you were painting over the texture.

Next, we'll load a media library to fully take advantage of our texture.

- Select **Media>Open...** from the Effect menu. The Media requester appears.
- Click on the Media drawer (in your DeluxePaint directory or from the Media disk), and select the Oil media library. Click OK.

When you draw on the screen now, you'll get the effect of an oil pastel crayon on heavy canvas. There isn't any difference between drawing on the square where the canvas texture is visible other than the fact that you can see the background texture plainly — the oil foreground will appear the same in either case, and will show the effect of drawing on the canvas texture.

Try drawing with both the freehand tool and the airbrush (try both the Old Style and Standard airbrush modes from the Airbrush requester and compare the results). Now your Amiga can duplicate natural drawing and painting methods with no messy cleanup!

Summary

This chapter completes the ***Guided Tour*** of DeluxePaint V. Chapter 4 presents some painting tutorials, which will help you learn how to get the most out of the way the program uses colours and palettes. Because DeluxePaint's colour capacity is one of the program's strongest and most versatile features, we highly recommend that you work through the exercises we have described there.

Chapter 4

PAINTING TUTORIALS

The six tutorials in this chapter introduce some of the most powerful painting features of DeluxePaint V. Each tutorial is independent from the others, so you can choose to complete only the exercises that interest you.

Tutorial One: Working with Colours

This tutorial will walk you through using the DeluxePaint V colour requesters.

- Start DeluxePaint V fresh, and at the Screen Format requester, choose Lo-Res 16 colours.

Sixteen colours is far from the maximum number of colours you can work with, but it is a good place for us to begin explaining the colour manipulation features of DeluxePaint V.

Manipulating the Palette

In this section of the tutorial, we'll look at the ways you can manipulate your palette. This will help you make best use of the colours available to you in non-HAM modes.

The Toolbox Palette (What You Can Paint with)

You may remember from the Guided Tour that the number of colours you can paint with depends on the Screen Format you choose to work in. The important thing to remember in all modes except HAM and 24-bit backing store modes is that all of the colours you can paint with appear in the palette area below the toolbox. If you are ever confused about which colours are available to you, look at the Palette below the Toolbox to see your colours.

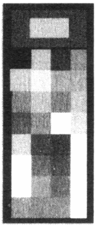


FIGURE 4.1 COLOUR INDICATOR AND PALETTE

Of course, you can change these colours to create the ones best suited to the artwork you have in mind. The common way to change colours is to use the Palette Mixer.

The Palette Mixer

- Move the cursor over the Colour Indicator and click with the right mouse button.

Right-clicking on the Colour Indicator displays the Palette Mixer. You can also display this requester by choosing **Palette>Mixer** from the Colour menu, or by pressing p on your keyboard. Use the method that is most natural for you.

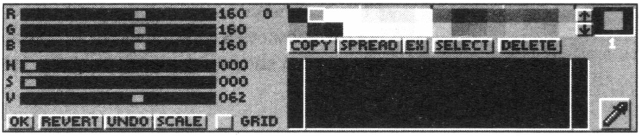

R 160 0
G 160
B 160
H 000
S 000
V 062
COPY
SPREAD
EX
SELECT
DELETE
OK
REVERT
UNDO
SCALE
GRID
1

FIGURE 4.2 THE PALETTE MIXER

Palettes vs. Colour Sets
One of the first things you'll notice about the Palette Mixer is that it may contain more slots than there are colours in your Palette. In DeluxePaint V you are able to mix and spread colours outside your palette as a way to "experiment" with colours before committing to them in the picture.

There are 16 colour slots to a row, and 16 rows numbered 0 through 15 for 256 colour slots in the Mixer. We call this collection of slots the Colour Set. The Palette is a smaller number of colours included in the Colour Set. In the Palette Mixer, the Palette colours are arranged in rows 0–3. When the grid is turned on (it is off by default) the top and left edges of each colour are outlined in white. The top and left edges of non-palette colours are outlined in blue when the grid is turned on.

When you first open the Palette Mixer, you have only palette colours and the rest of the slots are empty. Empty slots are indicated with a checked pattern. If you try to paint with one of these colour slots, you'll see that the colour is white by default.

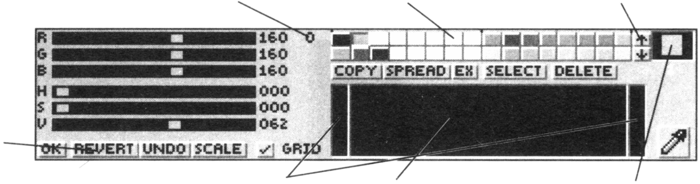

CHANGE PALETTE ARROWS TO SEE MORE OF THE COLOUR SET
PALETTE NUMBER
PALETTE COLOURS
PALETTE ACTION BUTTONS
MIXER WELLS
MIXING AREA
CURRENT FOREGROUND COLOUR
R 160 0
G 160
B 160
H 000
S 000
V 062
COPY
SPREAD
EX
SELECT
DELETE
OK
REVERT
UNDO
SCALE
✓ GRID

FIGURE 4.3 THE PALETTE MIXER

RBG/HSV Sliders
First let's look at how you can change the colours that already exist in your palette.

- Click on the bright red in the Palette Mixer and paint on the screen.

As you can see, you can still paint on your image when the Palette Mixer is displayed.

- Now, drag the RGB or HSV sliders in the Palette Mixer to alter the red.

Notice that the colour on the screen changes as you change the colour in your palette. The red in the Colour Mixer is a Palette colour, so the colour you placed on the screen is tied directly to the colour in the Palette. This is true of most Screen Format settings in DeluxePaint V. HAM and 24-bit backing store modes are the exception. In these modes it is possible to paint on the screen with colours that are not in your palette. We'll explore these two colour models in a moment in Introduction to RGB and HSV Colour Models.

DeluxePaint V lets you set your colour values using either the RGB (red, green, blue) or HSV (hue, saturation, value) models. You'll learn more about both of these colour models in a moment.

UNDO

- Click UNDO in the Mixer to undo the change to the palette. You'll see both the colour in your palette and the colour on the screen restored to red.

You can undo any change to a colour in your palette so long as you don't click any other colour before you click UNDO. Undo remembers and reverses only the most recent change. If you wanted to return to the palette and colour set you had when you first opened the Palette Mixer, you would click REVERT. The UNDO button makes it possible to experiment with colours in your picture and return to the original easily if you don't like your experiment.

Copy and Exchange

You can rearrange the colours in your palette by using the COPY and EX(change) buttons.

- With the red colour selected, click COPY and click on the first empty slot of your palette to copy the red there.

- Click the Yellow in your palette and copy it to the empty slot beside the new red.

- With the new yellow colour selected, click EX and click on the new red to swap the positions of these colours.

Copy and Exchange are straightforward ways to arrange colours in your palette. Perhaps the most important way you'll use them is to arrange your palette for creating spreads between colours.

Spreading Colours

Spreading colours is an effective way to get subtle shades of a colour. Let's create a spread of colours from white to dark blue.

- Click on the white in your palette colours. Click SPREAD and click on the dark blue at the right end of your palette colours.

Now you have a spread of colours from white to blue with the colour settings for each of the slots mathematically calculated to give you the most evenly spread colours based on the number of slots between the white and the blue.

◆ Note that DeluxePaint uses the HSV model to build its spreads. This means that when you spread between blue and yellow, the colours in between will run through the greens in the colour wheel.

Many other functions in the program (including Ranges) use the RGB model to calculate spreads of colour. It is important to understand the distinction between these two colour models and how to use them to your advantage. If you aren't already familiar with these two colour models, be sure to work through the section ***Introduction to the RGB and HSV Colour Models*** below for an explanation of basic colour theory.

Colour Set

Now that there are no reds or yellows in your palette (though there is one of each in your Colour Set), we want to illustrate an important concept.

SPECIAL NOTE *In any colour mode other than HAM or 24-bit backing store, if you try to paint with a colour from the Colour Set that is not in your palette, DeluxePaint paints with the colour in your palette that most closely matches the Colour Set colour.*

Here's an example:

■ Click on the red in your colour set and paint with it on the screen.

You should see that you are painting with the darker of the two greys in your palette, because this grey is the colour in your palette that is closest to red in the RGB colour cube. (You'll learn more about the RGB colour cube later in this section.)

■ Click on the yellow in your colour set and paint with it on the screen.

You should see that you are painting with the lighter of the two greys in your palette. As we mentioned above, the best way to know which colours you can actually paint with when you are in any screen format other than HAM or 24-bit backing store is to look at the palette underneath the Toolbox.

The Mixing Area

The mixing area lets you mix colours together the way an artist mixes paint. Like the extra colour slots in the Colour Set, the Mixing Area can contain any of the possible colours, but unless you are using HAM or 24-bit backing store modes, you will be able to paint only with the colours you place in your palette. Let's mix a new colour right now.

■ Choose the third round built-in brush from the toolbox. Choose the red colour from your Colour Set and paint with it in the Mixing Area. Then choose the yellow and paint into the red.

You'll see the two colours mix together to form oranges. As you mix, your brush spreads the mixed colours, but each time you click down, your brush starts over with yellow automatically so you can gradually add the yellow to the red.

A second way to mix a new colour is drop two existing colours into the Mixer Wells on either side of the Mixing Area. The two colours are automatically blended together in the Mixing Area to create a colour spread.

- Choose red from the Colour Set, and drop it into the well on the left side of the Mixing Area.
- Choose yellow and drop it in the right well. The colours are gradually blended together across the Mixing Area.

To move any of your new colours into the Colour Set, use the Pick icon button at the lower right of the Palette Mixer.

- Click on an empty slot in the Colour Set. Click the Pick icon. (Your pointer changes to an eyedropper.) Click on a colour in the Mixing Area.

The colour you clicked on is added to the Colour Set in the slot you chose.

To clear the Mixing area to any colour and start over, you copy a colour to the colour mixer.

- Click on black in the Mixing Palette. Click the COPY button. Click in the Mixing Area to clear it to black.

Arrange Palette Requester
Although we moved a few colours in the palette using the Palette Mixer, the best place to accomplish palette color set arrangement is in the Arrange Palette requester.

- Choose **Palette>Arrange** from the Colour menu.

This requester lets you see eight rows of colours at a time, and you can quickly scroll through the other eight rows with the up and down arrows. Each click on the arrows to the right of the colour rows moves the rows up or down by one. The number in the upper center of the requester shows the number of the row at the top of the list. When you are looking at the first eight rows (rows 0–7), this number is 0, when you're looking at the last four rows (rows 8–15), the number is 8. If you hold down the Shift key when you click on the arrows, you move directly to the first or last eight rows.

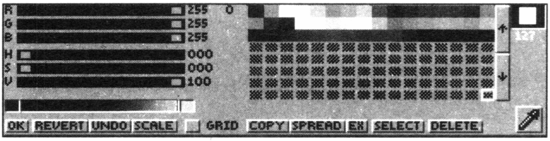


FIGURE 4.4 ARRANGE PALETTE REQUESTER

The buttons in this requester work just like the ones in the Palette Mixer. The SPREAD option is especially useful in the Arrange Palette requester because it lets you easily spread over multiple rows in the set without having to scroll the rows.

The SELECT button allows you to select a contiguous range of colours.

- Select the first colour in the range, and then click SELECT. The cursor changes to an eyedropper. Move the pointer to the last colour you want to select and left-click. All the colours in the range are selected.

- You can also select a contiguous range with the keyboard by Alt-clicking with the mouse.

- To select a non-contiguous range, Shift-click on each colour you want to select. The colors in between the selections are not selected. **DeluxePaint** remembers the order of the colours selected when you copy or exchange them.

Loading and Saving Palettes and Colour Sets

DeluxePaint V also lets you load and save Palettes and Colour sets. If you continue on to the Ranges tutorial, you'll see an example of loading a Colour Set. Otherwise we recommend that you look in the Reference for information on how to use these features.

Introduction to the RBG and HSV Colour Models

In this exercise, you'll be looking at the Reference Palette to learn how DeluxePaint mixes red, green, and blue to form other colours. You'll also see the relationship between the RGB and HSV (hue, saturation, value) colour systems.

- Choose **Load** from the Picture menu and load the picture named Reference Palette from the Picture drawer of the Examples disk.

❖ If you see the message asking if you want to change screen format to that of the file, click Yes.

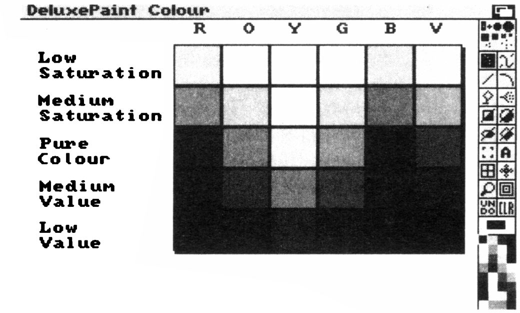


FIGURE 4.5 THE REFERENCE PALETTE PICTURE

The Reference Palette picture shows you a matrix of the colours in the colour spectrum: Red, Orange, Yellow, Green, Blue, and Violet. These are the colours that are produced when you mix coloured pigment. In effect, these are the colours a traditional painter would work with. This is not the spectrum produced when you mix coloured light. That spectrum produces the colours Red, Yellow, Green, Cyan, Blue, and Magenta.

- Choose **Palette>Mixer On/Off** to display the Palette Mixer. Click on the main screen to activate it. Press F10 to hide the Menu Bar and Toolbox.

Now let's look at the RGB and HSV values of some of the colours in the Reference Palette.

- Click the Dropper icon in the Palette Mixer and then click the red square in the row labelled Pure Colour. Look at the sliders in the Mixer.

In RGB terms, your Mixer shows that a pure red is all red colour with no green or blue.

In HSV terms, pure red is hue 0 with full saturation and full value. Saturation is the relative amount of colour to white, and value is the relative lightness or darkness of a colour. Value is often referred to as Luminosity. To see exactly what this means, let's change the sliders a bit.

- Drag the saturation (S) slider all the way to the left to see what happens to the colour. Drag the saturation slider back to the right. Now drag the value (V) slider all the way to the left.

As you drag the saturation slider left, the red gets lighter until it is white. As you drag the value slider left, the red gets darker until it is black. Regardless of the hue or saturation, a value of zero always produces black.

The meaning of the saturation and value sliders is exactly what the matrix in the Reference Palette shows. Notice that the colours in the Low Saturation row are all pale — they don't contain much colour. The colours in the Low Value row are dark — they don't contain much luminosity. The colours in the Pure Colour row contain full saturation and full value.

Hue simply refers to the position of a colour on the colour spectrum or rainbow — Red, Yellow, Green, Cyan, Blue, or Magenta, and the various shades in between. Figure 4.6 shows the positions of colours on the Colour Wheel.

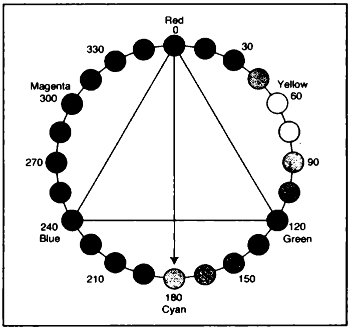


FIGURE 4.6 THE COLOUR WHEEL

Let's look at another colour in the Reference Palette.

- Click the Dropper icon and then click on the yellow square in the Pure Colour row.

The RGB sliders show that yellow contains the maximum amount of red and green, but no blue. Yellow is said to be the "complement" of blue. Each of the primary colours has a complement. In the RGB colour system, the relationship of the primary colours and their complements are best thought of as a cube in which each dimension is measured in one of the three primary colours, as shown in Figure 4.7. The complement of each primary colour is positioned at the opposite corner of the cube. Thus, moving downward on the edge of the cube to add red to green produces yellow (R15, G15, B0) the complement of blue, which is positioned at the opposite corner from blue. If you look back at Figure 4.6 you'll see that in the HSV colour system, the complements are also directly across the circle from the primary colour — yellow is directly across the wheel from blue.

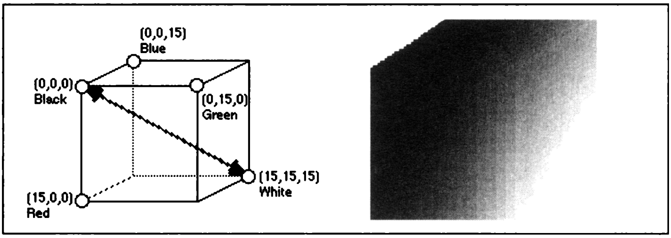


FIGURE 4.7 RGB COLOUR CUBE

Notice that black is the absence of colour (R0, G0, B0) and white is the maximum level of the three colours (R15, G15, B15). The line running diagonally through the centre of the cube from black to white shows the positions of the greys, which are formed by combining equal amounts of red, green, and blue. Thus R8, G8, B8 would yield a medium grey. Let's try this in practice:

- In the Mixer, drag each of the RGB sliders to 8. Once all three primary colours are at 8, you have medium grey.
- Look at the position of the value slider in your Colour Palette; it is at the same level as the red, green, and blue sliders.

❖ Note that if you are using an AGA machine the RGB scale is from 0–255, not 0–15, so in the example above, to get a medium grey you'd set the RGB sliders to 129, 129, 129.

The mixing of greys is one area where the HSV system excels. Rather than moving all of the RGB sliders to the same position, you can simply drag the saturation slider all the way to the left and move the value slider to the level of grey you want. The position of the hue slider will have no effect, because there is no colour (no saturation) in grey.

- ■ Move the hue slider left and right and notice how the grey you produced doesn't change. Now move the value slider left and right to see how the RGB sliders move along with the value slider, always staying in a perfect line.

Can you change the colour back to yellow? Remember, yellow is the complement of blue.

- ■ Move the red (R) and green (G) sliders all the way to the right and move the blue(B) slider all the way to the left.

Now that you know the basics, try mixing a few colours you like using either one of the two colour mixing systems. Here's a trick you might also consider: mix a few palettes that you particularly like and save them using the **Palette>Save** option in the Colour menu. You can then automatically produce that palette by loading it from the Colour menu. There are also some sample palettes included in the Colours drawer of the Media disk.

Before we leave the topic of colour mixing, let us just summarise a few important points:

- ☐ Your Amiga and DeluxePaint mix colours using the RGB system, and this system is represented by the colour cube.
- ☐ If you want to find any pure colour, you can do so using the HSV system by moving the saturation and value sliders far to the right and then scrolling the hue slider until you find the colour you want.
- ☐ If you need to produce a grey, you can do so by setting all three of the RGB colours to the same level, or by setting the saturation slider to the left and adjusting the value slider to the grey level you want.

Besides providing a sample spectrum for our colour mixing tutorial, the Reference Palette is useful for adjusting your monitor to match your printouts. Reload the picture to restore it to its original colours and print out a copy on your colour printer. Then adjust your monitor until the colours on your screen look the same as those on the paper.

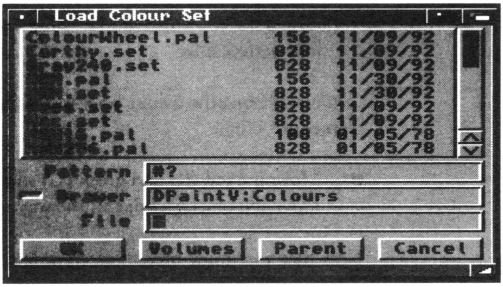
Tutorial Two: Working with Ranges

In this section you'll learn how to build a Range for use in gradient fills and colour cycling. DeluxePaint V has moved the range functions out of the Palette Mixer requester to make ranges more versatile in all colour settings. First we'll show you how to work with ranges in 32 colour mode, since this mode illustrates the basic concepts you need to master. The tutorial Painting in HAM will explain how Ranges work in HAM. So, before you begin:

- ■ Change your Screen Format to Lo-Res 320 x 200 with 32 colours.

Before you begin building a range, we'll have you load a Colour Set that contains a pleasant spread of colours to paint the range with.

- Choose **Colour Set>Load** from the Colour menu.



ColourWheel.pal 156 11/09/92
Earthy.set 828 11/09/92
Gray240.set 828 11/09/92
[illegible].pal 156 11/30/92
[illegible].set 828 11/30/92
[illegible].set 828 11/09/92
[illegible].set 828 11/09/92
[illegible]6.pal 108 01/05/78
[illegible]256.pal 828 01/05/78

Pattern #?
Drawer DPaintV:Colours
File

FIGURE 4.8 LOAD COLOUR SET REQUESTER

- When the first Load Colour Set requester appears, load file Range.set from the Colours drawer on the Media disk.

Once the Colour Set is loaded, you are presented with a second Load Colour Set requester that is similar to the Arrange Palette requester.

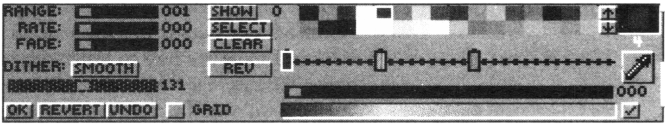
This requester allows you to choose which colours you want to load from the colour set to add to your current colour set. And you can choose to add colours to your current set, or you can overwrite the colours in your colour set with the new colours. This requester chooses all colours by default. We want to load all of the colours from this new colour set and overwrite the colours that are in our current colour set. To do this:

- Click the Overwrite button.

The Overwrite button loads colours into your current colour set starting at colour 0. After the Colour Set is loaded, the Arrange Palette requester is automatically displayed so that you can arrange the colours as you like. The Palette you'll see contains two spreads of colour that paint smooth gradients even in the Low Resolution mode we are using now. These spreads of colou. were created by mixing the colour at each end of the spreads in the Palette Mixer and then using the SPREAD option to generate the colours between.

Building the Range

- Choose **Ranges** from the Colour menu to display the Range requester.



RANGE: 001
RATE: 000
FADE: 000
DITHER: SMOOTH
131
000
☐ GRID

FIGURE 4.9 RANGE REQUESTER

The Range Requester is DeluxePaint's way of building ranges for use in painting gradients or cycling colours. You can build up to eight ranges for each document, and these ranges are saved with the file. When you start the program, it contains a default set of colours in the first range. In our case, the default range contains the greys in the lower half of the palette. We'll leave this range in place and build a new one. The slider in the upper left corner of the requester lets you choose the current range being used by the program.

- Click to the right of the slider to move to range 3.

Range 3 should still be empty and ready for us to work with. To build a range, you place colours on the bar just as you saw them in the first range. If Range 3 is not empty, click the CLEAR button.

- Click on the last yellow in the requester.

Your cursor becomes a rectangular bead, and the colour indicator in the upper right corner of the requester shows that you are holding a yellow colour.

- Move the cursor to the first mark on the range bar and click. (Your yellow colour appears on the bar and your cursor reverts to an arrow.) Place the second yellow on the bar the same way.

Tip *You can speed up the process of placing colours on the bar by selecting a range of colors and placing them on the range bar. We'll do it now:*

- Select the red colour in your palette.
- Click SELECT or hold down the Alt key, and then click on the last yellow color in the range you want to select. All colours in between and including the two selections are highlighted.
- Click the colours in place on the range bar. The entire range is placed on the range bar.

❖ You don't need to put the colours right next to each other on the bar to build an effective range. And you don't need to put the colours in the same order that they appear in the palette. We're doing this only because this is the most convenient way to work with ranges in modes other than HAM. We'll show you some other variations on ranges when we look at gradients in HAM and at Colour Cycling later in this tutorial.

- Click and hold the SHOW button to see the range painted as a gradient.

You'll see a gradient painted with your current range in both the requester and in a bar above the requester. The gradient inside the requester shows you the gradient using all of the colours available for that gradient in the Amiga colour universe of 4096 colours. If you are not working in HAM mode (and we're not) the second gradient appears above the requester to show you how the gradient will look using your current palette. Since our range was built from colours that exist in the palette, and we placed all of the colours on the range bar, our gradient looks spectacular.

The Reverse Button

The REV (Reverse) button beside your new gradient does exactly what its name implies—it reverses positions of your colours on the range bar.

- Click REV once to see how it reverses the colours on the range bar and repaints the gradients.

Smooth, Pattern, and Random Dither

At the moment, the gradients you see for your range are painted using a regular pattern that produces an even transition between colours. If you want to exercise a little more control over your gradients or if you want to eliminate the smooth transitions altogether, you can do this with the Random button and Dither slider at the bottom left of the Range requester. When you click the Random button, your gradients are painted using a Random dither that you control with the dither slider.

- Click the Random button at the left of the requester.

Notice that this cycles from Random to Pattern to Smooth, and then back to Random. Click and hold SHOW, and notice that now your gradients are redrawn using a random dither.

- Drag the Dither slider all the way to the right to see how this affects your gradients. Drag the slider all the way to the left to see the gradient with no dither.
- Click the Random button again to check out the Pattern and Smooth dithers.

Now that you've seen how most of the Range controls work, let's move on to painting with this range to see how it is used in gradient fills.

- Click OK to close the Range requester.

Gradient Fills

As we mentioned above, one of the areas of DeluxePaint V where ranges are used is in the painting of gradient fills. There are two general types of gradient fills to know about in DeluxePaint V. The first type of gradient is the linear style that has been supported since DeluxePaint III. The second is a "directional" gradient that lets you specify the angle of any linear gradient, and the central point for any radial style gradient. We'll show you how to draw one of each of these gradients.

Fill Type Requester

As mentioned in the Guided Tour, the Fill Type requester is where you choose what type of fill your filled shapes and the Fill tool will use. You display this requester by right-clicking on the Fill tool or any filled shape tool.

- Right-click on the Fill tool in the Toolbox to display the Fill Type requester.

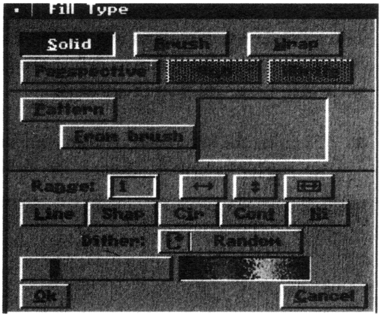


FIGURE 4.10 FILL TYPE REQUESTER

The lower section of the Fill Type requester contains an assortment of options for filling with a range. You can choose which of your Ranges you want to fill with, and how the program should perform the fill. The requester also shows you a representation of your current range and lets you set the Dither option just as you would in the Range requester.

Linear Fills

↔ ↕ ▭

The first three icons in the gradient area of the Fill requester are fills that were supported from DeluxePaint III on. Let's paint with the first of these options to see what they are like.

- Click the ↔ icon in the requester.
- If you aren't already looking at Range 3 (yellow to red) in the requester, click in the Range box, delete the current number, type 3 and press Return to change to range 3. You'll see the range painted in the requester. Click OK.
- Select the Filled Circle tool and draw a circle that is about two inches wide.

In a moment DeluxePaint paints a circle that is filled horizontally with your gradient from left to right. The other two options in this row work essentially the same way. They paint linear fills either horizontally or vertically. Try them out for yourself, or see Figure 4.13 for an illustration of these gradients.

Directional Gradients

DeluxePaint V introduces new gradients that allow you to define the direction of the gradient at any angle. There are two styles of gradients: linear gradients and radial gradients.

Linear Gradients
The two linear gradients are LINE and SHAP(E). When you fill with these gradients, you use a "directional" line to indicate the angle of your gradient.

- Select the Filled Circle tool, and press Shift-F to display the Fill Type Requester. Select the LINE option and Pattern dither and click OK.
- Draw another filled circle that is about two inches wide.

When you release the mouse button, your cursor changes to a cross-hair with a line connecting it to the centre of the circle. We call this the "directional" line, and you use it to define the direction of your gradient. Let's paint this linear gradient at an angle.

- Position the cross-hair so that your line extends up and to the right at an angle of about 45 degrees (as in Figure 4.11) and click.

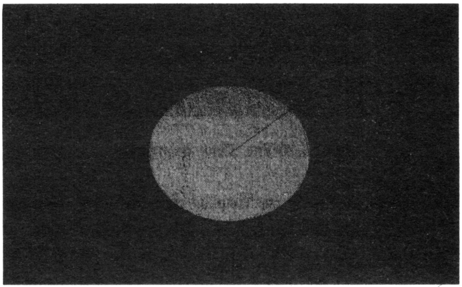


FIGURE 4.11 POSITIONING THE DIRECTIONAL LINE

This new circle is painted with a gradient at 45 degrees.

Radial Gradients
The three radial gradients are CIR(CULAR), CON(TOURS), and HI(GHLIGHT). When you fill with these gradients, you use the directional line and cross-hair to indicate the point from which the gradient will radiate.

- Display the Fill Type requester. Select the CIR option and Pattern dither and click OK. Draw another filled circle that is about two inches wide.

- When the directional line appears, place the line at a 45 degree angle, but this time make sure the cross-hair is mid-way between the centre of the circle and its edge as in Figure 4.12. Click the mouse button.

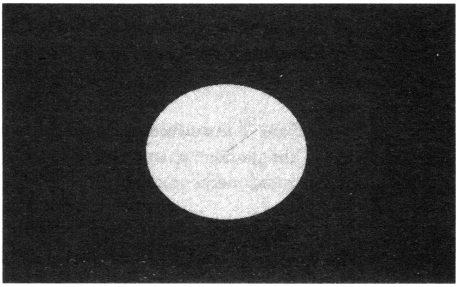


FIGURE 4.12 POSITIONING THE DIRECTIONAL LINE FOR A RADIAL FILL

This time your circle is filled with a gradient that radiates outward from the point where you clicked. The gradient is painted with the first colour of your range as the highlight colour where you click. If you clicked outside the circle, the gradient would still use the point where you clicked as the point from which the gradient would radiate, and the effect would be different. Give it a try if you like.

The figure below shows an example of each of the gradient fills available in DeluxePaint V drawn using the yellow to red gradient. If you like, experiment with the other gradient fill types and play around with the Random dither setting too. We also recommend that you try the radial gradients with different shapes to get a feel for which combination of fill and shape gives the best results. Of course "best" is entirely a matter of personal taste.

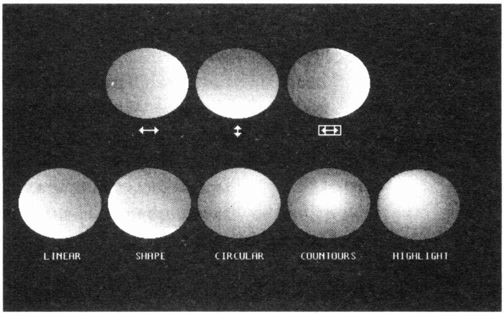


FIGURE 4.13 EXAMPLE OF THE EIGHT GRADIENT FILL TYPES

Colour Cycling Ranges

In the Gradient Fills section you learned how to use a range to fill shapes with a gradient. You can also use these same ranges and others to create colour cycling animations. The simplest type of colour cycling uses ranges of consecutive colours just like the one we built for painting the gradients in the example above. DeluxePaint also uses two other types of colour cycling that allow you to use colours that are not in your palette in a colour cycling range. We'll walk you very quickly through each of the different versions of colour cycling, and then have you look at some colour cycling brushes that are included on your Media disk.

Conventional Colour Palette Cycling

The simplest form of colour cycling makes each of the colours in the cycling range move over to use the colour in the next slot in the range. This type of colour cycling requires that you use multiple colours from your palette to perform the colour cycle. By cleverly combining colours, you can simulate animation with this kind of colour cycling. There are several examples of this type of colour cycling on your Media disk. Let's take a look at two of them now:

The Running Man

- Choose **Load** from the Brush menu and load the Cycle2 brush from the Brush drawer on the Media disk.

Your Brush is now several images of a running stick figure.

- Choose **Palette>Use Brush Palette** from the Colour menu to change your palette to the palette of the brush.

- Make Colour 0 your background colour and click CLR to clear your screen to black.

- Stamp down the brush and press the Tab key to start colour cycling.

Each position of the running man was drawn in a different colour from Range 1. Because five of the six colours in this range are black, only one frame shows at a time, as the white colour cycles into each position in the palette. The remaining five images are invisible against the black background. (Display the Colour Mixer and change the black colours in this range to any non-black colour to see all the frames.)

The Spinning Wheel

- Load the brush Cycle1 from your Media disk; stamp down the brush and press Tab to turn on colour cycling.

This colour wheel was drawn as a circle with lines radiating out from the centre. The pie-shaped pieces were then filled with adjoining colours in Range 2 of the Range requester. Thus, as the colours in the wheel cycle, the wheel appears to spin.

The brushes Birds, Snowball, StormNight, and Fireworks are other examples of this kind of colour cycling animation. Load each of them, change to the brush palette or use the "Load With Palette" option and turn on colour cycling to see how they work.

Single Register Colour Cycling

DeluxePaint V also allows you to cycle a single register through a range of colours. Rather than have you load an example to see this effect, we'll have you build one from scratch.

- Choose **Palette>Default Palette** from the Colour menu.

- Display the Ranges requester and move the slider to range 2. Click the Clear button beside the range to clear it.

- Click on the third colour in the palette (bright red) and place it on the left side of the Range bar. Place the bright yellow in the middle of the range bar. Click the Show button to show your new range.

Now you have a gradient that runs from red to yellow in the requester. (The gradient above the requester looks a bit less impressive because you don't have all of the in-between colours in your palette to make a smooth gradient.) At the moment, your range uses two colour "registers," that is colours from your palette to build the range. You can tell that the colours on the Range Bar are colours from your palette because each of the colour beads has a little dot above it. This little dot indicates that the colours are from the palette. The secret now is to change the yellow to a non-palette colour. We do that by "picking" the RGB value we want from the gradient in the requester.

- Press the comma (,) key on the keyboard or the eyedropper icon to get the eyedropper cursor. Move the cursor to the bright yellow area of the gradient in the requester and click to pick that bright yellow colour.

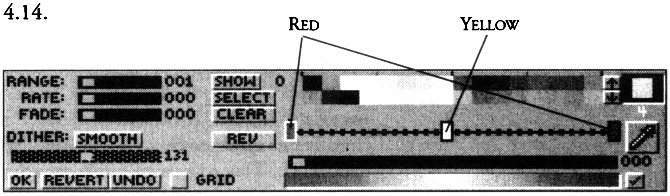
A new bead is now your cursor and the colour indicator in the requester shows that the colour is bright yellow.

- Click this new colour bead directly over the yellow bead in your range.

Notice that the new yellow bead on the Range Bar does not have a dot above it. This indicates that the colour is not from the palette, but instead is an RGB value that the program will use for gradients and colour cycling.

- Press the comma key or eyedropper icon again, pick a bright red from the left side of the gradient, and place it on the far right end of the Range Bar.

Your Range Bar and gradient should now look like the one shown in Figure 4.14.



RANGE: 001
RATE: 000
FADE: 000
DITHER: SMOOTH

FIGURE 4.14 RANGE BAR WITH RED AND YELLOW RANGE USING NON-PALETTE COLOURS

- Move the Rate slider in the requester to 50 and click OK to close the requester.

- Choose the bright red in the palette and paint with it. Then press Tab to start the colours cycling.

You should now see your bright red colour cycle through orange and yellow and back to red repeatedly. Notice that the red colour in your Toolbox also cycles through orange and yellow, but that no other colours in the Toolbox change. You are cycling the colour on your screen but using only a single colour register!

As you might well imagine, this new form of colour cycling is very useful for strobing effects of causing an area of your picture to fade in and out without giving up a lot of colours to do it.

Hybrid Cycles

You can combine the conventional colour cycling with RGB colours in the range to create moving images that also strobe. We've included a couple of these on the disk to give you the idea. Take a look at them now if you think that you'll be using colour cycling in your pictures. These cycles are of special interest.

- Choose **Load** from the Brush menu and load the CycleCircle brush from the Brush drawer.

- Choose **Palette>Use Brush Palette** from the Colour menu to change your palette to the palette of the brush.

Your Brush is now a blue and white circle.

- Stamp down the brush and press the Tab key to start colour cycling.

Notice that although the original brush did not contain any yellows in it, as the wheel turns, yellow and gold colours strobe into the cycle. If you display the Range requester and examine Range 1, you'll see a combination of palette colours (colour beads with the dot above) and RGB colours (without the dot). The brushes Fountain and Lighthouse also use this range and demonstrate practical uses for this type of colour cycling.

TIP If you want to create your own cycling pictures that use this hybrid style of colour cycling, create a conventional cycle range first and paint the picture so that it animates correctly when you cycle. Then add the RGB colours to the cycle range to incorporate the strobing effect.

Tutorial Three: Painting in HAM

Through the wonders of HAM mode, the Amiga computer lets you paint with 4096 colours simultaneously. In the right hands, this mode can yield wonderful results. If you are not already familiar with painting in HAM from some other product, it will likely take you some time to get used to this mode. This section will walk you through a tour of HAM as it is implemented in DeluxePaint V. If you are unfamiliar with HAM and plan to work in HAM at all, we strongly recommend that you work through this section.

Before you Begin

- Start the program fresh and at the Screen Format requester, choose Lo-Res 320 x 200 and HAM.

The HAM Palette

The first thing you'll notice when you start the program in HAM mode is that the Toolbox Palette now has arrows and a letter in the space below it.

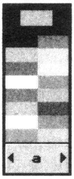


FIGURE 4.15 THE COLOUR INDICATOR AND HAM PALETTE

The arrows let you scroll through the colours in your Colour Set, and the letter tells you which of the groups of 16 colours you are currently looking at.

- Click the right arrow below the palette several times to scroll forward through the Colour Set. Click the left arrow to scroll backward through the Colour Set.

You can move quickly to the beginning or end of the Palette by holding down the Shift key when you click the arrows.

- Hold down the Shift key and click the right arrow to move to the last group of colours. Shift-click the left arrow to move to the first group of colours.

The first group of colours in the Colour Set (the "a" group) contains your actual Palette colours. The other colours are simply part of the Colour Set, but unlike in other modes, you can actually paint with these extra colours.

NOTE The HAM8 Palette consists of 64 colors in 4 groups of 16.

So what's the difference between a Palette colour and a Colour Set colour in HAM? We're glad you asked...

HAM Ramping

When you paint in HAM, any colours that are not in your Palette (group "a" of the colours below the Toolbox; see Note above), are displayed on the screen by copying the colour in the pixel to the left and modifying one of the RGB components of the colour. (You'll find a technical explanation of how this is accomplished in ***Appendix D.***) Because HAM mode can change only one of the colour components at a time, it can take up to three pixels to reach the colour you really want to paint with. This transition from one colour to the next is called a "ramp." Let's take a look at an example.

- Choose the largest square built-in brush and the Freehand tool.
- Press `P` to display the Arrange Palette Colour Panel.
- In the Mixer, COPY colour 0 (black) to colour 15 (lavender). Now click SPREAD and spread between the two blacks. This will change all of your palette colours black.
- ❖ AGA users can copy colour 0 to colour 63 and do a spread between these two colours.
- Click on white in your colour set, paint a filled square on the screen, and press `m` to magnify it.

You should see that your white square has a ramp on the left side. From black the colour changes to green, then to yellow, and finally to white. The ramp required three pixels to reach white because the change from black to white requires a modification to each of the R, G, and B components of the colour, and there are no intermediate colours.

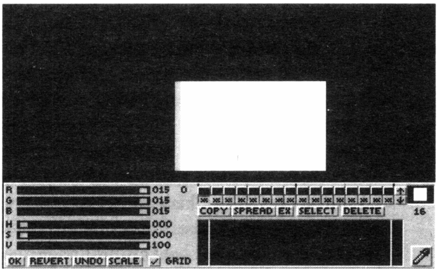

R 015 0
G 015
B 015
H 000
S 000
V 100
16

FIGURE 4.16 HAM COLOUR RAMP FROM BLACK TO WHITE WITHOUT INTERMEDIARY COLOURS

If there were an intermediary colour in the palette, the ramp might be accomplished in more or less than three pixels and result in a smoother transition from black to white. Let's look at an example:

- Choose **Palette>Default Palette** from the Colour menu.

Now you are back to the standard HAM palette. This palette contains some intermediate greys and an assortment of colours spaced throughout the colour cube.

- Click on color 16 or choose a white that is not in the palette. Paint another square on the magnified screen. (AGA users can choose a white in the colour set.)

Notice that this time the ramp is four pixels across, but the colours used in the ramp are much closer to the target colour of white, so the ramp is not as noticeable. DeluxePaint chose a colour from the palette to start its ramp with. The colour it chose is colour 3, which has an RGB value of 13, 13, 13, very close to white. When DeluxePaint chooses a colour from the palette to begin a ramp, it searches the palette from the left and chooses the first colour that is acceptable. And to determine which colour is closest, the program compares the colours in the palette with the colour you are painting with.

So far we've been showing you what happens to the HAM colour that you are painting down and how DeluxePaint ramps to create that colour. Keep in mind, however that if the colour you are painting ON is a HAM colour, the program will have to compute a ramp to create that colour also, so you will see a ramp on the right side of your brush. When DeluxePaint creates this ramp, priority is given to the brush colour when selecting a colour from the palette to begin a ramp.

❖ When you paint with a HAM colour using the single pixel brush, you are actually painting with the closest colour that the program can ramp to in a single pixel. If you need to do detail work, you should put the colours for the fine details in the palette (the first 16 colours of the colour set, or 64 in AGA HAM8 mode).

The construction of a useful palette is an important part of successful painting in HAM. With a little experience, you'll find the palette that works best for you.

Combining Images

If you plan to combine images in HAM by loading in custom brushes, it is best to create all of the separate images using the same palette. This is especially true if you are using HAM animbrushes to be combined with a HAM background.

We included a HAM background (AquariumBackground) and two HAM animbrushes (AngelFish and BettaFish) on the Examples disk for you to experiment with. These images all use the same palette, so they combine fairly well. Load the background image and create frames to use the animbrushes against the background. The brushes look especially good when stamped with Translucency set to 30 percent.

When you load a 32 colour or higher brush into a HAM picture, the brush is automatically remapped to use the current picture's palette. So the brush will immediately look correct on the screen. The brush's palette is also loaded intact, so you can choose **Palette>Use Brush Palette** if you want to use the brush palette. Then load the brush again to remap to the brush palette.

When you load a brush that is 16 colours or less into HAM, the brush is not remapped. You can choose to either use the brush palette or remap the brush.

Remember that DeluxePaint V loads and saves palettes and colour sets. This should make it much easier and faster for you to combine palettes.

HAM Fringing

Fast Adjust

Sometimes when you are moving a brush on the screen in HAM mode, you will see fringe on the right side of your brush. This happens when the colours in the picture are HAM colours, that is, not from the 16 colour palette. DeluxePaint attempts to correct the fringing when you hold the brush still so that you can see how the image will actually look when you stamp down the brush. If you turn off the **FastAdjust** option in the Prefs menu (this option in ON by default), DeluxePaint will attempt to correct the fringing effect even when you are moving the brush. The advantage is that your brush will always look its best, but the brush will also move more slowly when you move it around on the screen.

Recompute

HAM Fringing will be especially noticeable when you load images from some other programs that support HAM. If you load an image from another program and find that the fringing effect along the right side of your brush is severe, choose the **Recompute** option in the Colour menu. This option remaps the picture to its own palette to eliminate the fringing.

Changing a Picture's Colours in HAM

Many artists are accustomed to adjusting the colours in their image by changing the RGB values of the colour in the palette and thus automatically changing all instances of the colour in the picture. Since HAM colours are not tied to the palette, you cannot directly change them by changing the RGB values. You can, however, change the colours globally with the **BG>FG** option in the Colour menu. Here's an example of how to do it:

■ Choose **Palette>Default Palette** from the Colour menu.

❖ If it is not already displayed, press p to display the Colour Mixer.

■ Click on an empty colour slot in the Mixer.

If there are no empty slots, create some using the Delete button in the Mixer. Make sure the empty slots you create are not one of the first 16 colours.

- Change the RGB slider settings to 12, 13, 0. (AGA users: 63, 53, 0.)

  This should produce a bright yellow colour that is slightly different from the yellow in the palette. Because it is not one of the first 16 colours, it is a HAM colour. Paint on the screen with this new yellow.

- Click on another empty slot in the Mixer and change the RGB sliders to 15, 3, 4. (AGA users: 63, 6, 8.) This should produce a bright red colour.

- With the right mouse button, click on the yellow colour you created tc make it your current background colour.

At this point the Colour Indicator in the Colour Mixer should show that your foreground colour is bright red and your background colour is bright yellow. You should also have some of the bright yellow background colour painting in your picture. In the next step, we'll change the yellow colour in your picture to the red colour.

- Choose **BG>FG** from the Colour menu.

After a few moments, DeluxePaint repaints your picture with all of the yellow turned to red.

The **BG>FG** option changes every instance in the picture of your current background colour into the current foreground colour. In our particular case this meant that every pixel in the picture that had the RGB values 15, 3, 4 (yellow) changed to the foreground colour (red).

As you saw, it takes a moment for DeluxePaint to search through your image to change all of the pixel colours, but it performs this function much more rapidly than you ever could.

Colour Processing Options

To give you greater flexibility when working with HAM images in particular, DeluxePaint V includes some effects for painting. The most notable of these are the Translucency and **Process** options in the Effect menu. We'd like to show you a couple of these very quickly just to give you an idea of why they are there and how to use them.

Before you begin:

- Load the picture titled Retrospective from the Examples disk.

Translucency

The translucency option lets you combine a specified percentage of the colours in your brush with the colours in the image. This is especially useful for overlaying one image on another. Let's try a quick example.

- Select the Brush Selector tool and pick up the eye image in the upper right portion of the picture as a brush.

- Press F10 to hide the Menu Bar and Toolbox.

- Choose **Translucency>On/Off** from the Effect menu (or press Alt-`t`).

- Press F9 to redisplay the Menu Bar.

Notice that a T appears in the Menu Bar to tell you that Translucency is on.

- Move the brush over the image of the earth viewed from space and stamp down the brush.

You'll see DeluxePaint overlay 50% of the eye image over the earth image. You can also change the level of translucency by choosing **Translucency>Settings** from the Effect menu or press Ctrl-`t`. Since Translucency is an Effect rather than a Mode, it will also change the way shapes are painted on the screen. And, you can combine the Translucency effect with any of the Process effects to exercise greater control over the strength of the process effect.

- Choose **Translucency>On/Off** from the Effect menu to turn Translucency off.

The Process options in the Effect menu let you paint with different combinations of the HSV levels of your brush. Tint paints with a combination of Hue and Saturation. Hue paints with only the hue of the brush, if you're painting with a solid colour, this is a good way to convert a colour image to a monochromatic image as we'll see in a moment. Value paints with only the value of your foreground colour, and is a great way to add shadows or highlights to an image, or even just to lighten the image overall. We'll take a quick look at the Hue option to give you an idea of how the Process options work.

- Choose **Process>Hue** from the Effect Menu to make it the current process option. Then Choose **Process>On/Off** to turn the Process option on.

A P appears in the Menu Bar to tell you that one of the **Process** options is active.

- Press F10 to display the Toolbox. Choose the light pink as your current foreground colour. Select the Filled Rectangle tool.

- Press F10 again to hide the Toolbox. Draw a filled rectangle over the eye image in the upper right corner of the picture.

In a moment, the eye is painted over with pink and all of the colours in the image are shifted to pink. Using the Hue option does not affect the Saturation or Value of the colours in the image, so the resulting image is a monochromatic version of the eye. If you want to see the effect against the original, repeatedly press **u** to undo and redo the change.

As we mentioned above, the Translucency and Process options can be combined. Try some combinations of options on other areas of the picture. For example, try the Tint option with Translucency set to a high number to very lightly tint an area of the picture.

Tutorial Four: Gradient Translucency

A new feature of DeluxePaintV allows you to create gradients with variable translucencies. This feature can be used in any mode, but the more colours available, the better the effect. This effect works best in HAM modes, 24 b backing store mode, and if available, AGA modes. To get a good effect in lower colour modes, create good colour spreads and build contiguous color ranges. In this tutorial you will learn how to create a gradient translucency in HAM and how to use some of the new features to DeluxePaint's Range Colour Panel.

- To begin this tutorial, please reload the Retrospective.ham image from the picture drawer of the Examples disk. Select Yes if the program asks you to change modes.
- Hit F10 to turn off the menus and toolbox.
- Display the Range Colour Panel use the menu or press Ctrl-`r` to display it.
- If there is a range already defined for range 1, click CLEAR to delete i
- Select the yellow colour in your palette and place it on the left-most bead of the range line.
- Now that the yellow colour is selected (white outline) you can give tha colour a starting fade value/translucency. Click on the Fade slider and move it all the way to the right. As you do this you will notice that a small square bead appears below the yellow colour and changes from black to white as you increase the fade slider. Black is an indication of pure colour or opaqueness and white is an indication of no colour (100% translucency). The values range from 0 (fully opaque) to 255 (fully translucent). DeluxePaint will allow you to place fade values on any individual colour bead in your range up to 256 colours.

NOTE You can add fade values to bead positions even if there are no colours attached to that bead. This is useful for extra customising of your gradient translucency. Select a bead line (it will turn white) and give it a fade value. You'll see that the square fade bead appears below the bead line even though there's no colour attached.

- Slide the slider under your colour bead all the way to the right. (The number at the right of the slider and under the pick icon should read 224; this indicates the bead number that is at the right edge of the bead line.)
- Select the red colour in your palette and place it on the right-most bead line.
- We don't need to adjust the fade value of the red colour for this tutorial, but if you wanted to you could. For this tutorial let's leave it at 0 fade. If you click on the fade slider, you will in fact see the black square bead appear.
- We've now created a HAM gradient that goes from a translucent yellow to an opaque red. DeluxePaint automatically interpolates the in between fade values. Click and hold the SHOW button to see what th

gradient looks like. You should be able to see through it on the left side of the screen and see that it gradually gets opaque to the right.

Let's do a gradient fill to see what it looks like combined over an image.

- Click OK to close the range requester, then press `F10` to display the menu bar and Toolbox.
- Press `F` (Shift-`f`) or right click on the Fill tool in the Toolbox.
- The Fill requester should have range 1 as its current range.
- Choose the Hi button and Smooth Dither and click OK.
- Press `C` (Shift-`c`) or choose the Filled Circle tool from the Toolbox.
- Draw a circle over the little girl's head in the Retrospective.ham image to give her a space helmet.
- Experiment with the gradient translucency effect. It's a very powerful feature and can be combined with lots of different features within DeluxePaint V.

This section covered only a small part of the world of HAM painting. We hope that the ideas we've presented here helped you better understand HAM mode and that you'll experiment freely with the new options designed for this mode.

Tutorial Five: The World of Stencils

In the following set of exercises you will learn how to create and use stencils within DeluxePaint V. Although stencils are primarily used for producing quick, uniform lettering by amateur signwriters, they have uses that go far beyond that. Airbrush artists, for example, use stencils (which they call *friskets*) to cover certain areas of their work while they airbrush other areas.

DeluxePaint makes it easy to create a stencil for any part of an image, without the need to redraw the image. All you do is specify the colours that make up the stencil, and DeluxePaint does the rest, no matter how intricate the image.

Here's how it works: when you make a stencil for a particular set of colours, you lock (and thus protect) any parts of the picture that are made up of those colours. This means that when you have a stencil for a particular set of colours, you cannot paint over those colours until you turn the stencil off. It also means that you can essentially paint a picture backwards, from the foreground to the background, because you can use stencils to mask any foreground objects from the colours you are using for the background objects.

Before You Begin

- Choose **Load** from the Picture menu and load the picture named StencilSet from the Picture drawer.
- Click "Yes" when DeluxePaint asks if you want to change modes to 320x200 32 colors.

Distant Snowcaps

The left part of the StencilSet picture shows a distant mountain range behind a green field and under a colourful sky. (If you followed the preceding tutorial, you'll notice that both the sky and the field were created with a Gradient Fill, in a fraction of the time it would take using more traditional techniques.) Note that the mountain range is actually made up of three ranges, with the more distant ones painted in lighter shades than the nearer ones. In this exercise, we will put a snowcap on the most distant range without disturbing any other parts of the picture. This would be a tall order for any other graphic medium, but is surprisingly easy with DeluxePaint. Let's see how DeluxePaint does it:

- Choose **Stencil>Make** from the Effect menu to display the Make Stencil requester. Click Clear, click on Colour 8 (the one at the top of the second column), click Invert, and then click Make.

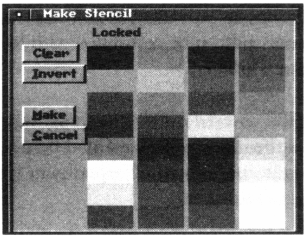


FIGURE 4.17 MAKE STENCIL REQUESTER

With four simple clicks you have created a stencil that locks every colour in the picture except Colour 8, the colour of the most distant mountain range. The first click cleared the picture of any stencils, the second selected the stencil colour, the third click inverted the stencil configuration (making everything except Colour 8 a stencil), and the fourth made the stencil. To let you know that you have a stencil active, an "S" appears on the Title Bar.

Note that clicking Invert simply inverts the current stencil configuration, saving you the trouble of clicking all the colours except the one you want to paint on. This is useful if you want to paint on one or two selected colours to the exclusion of the rest; if you want to create a stencil to lock only one or a few colours, you don't need to use invert.

The next step is to paint the snow on the distant mountain range:

- Press p to display the Mixer. Change Colour 1 (the second colour in the palette) from grey to white by dragging the RGB sliders all the way to the right.
- Select white as the foreground colour, and then select the one-pixel brush and the Airbrush tool. Move the cursor over to the distant mountain range and spray a snowcap on it.

Because every colour except that of the most distant mountain range has been locked, you can spray without fear of splattering any adjoining colours.

Note that although the white you are spraying on the mountain range is one of the locked colours, it is not itself locked while you are applying it. This means that you can paint over it with another colour (such as the original colour of the mountain, if you don't like the look of the snowcap) just as though it were unlocked.

To lock a recently applied colour, just select **Stencil>Remake**. You don't need to display the Stencil requester again, because the configuration is still as you want it. This also means that you can use the "Again" key (a) to update your stencil, if **Remake** was your last menu command.

Tip The Again rule is simple: press a whenever you want to repeat the immediately preceding menu command, to save you moving the mouse up to the Menu Bar and through menu and submenu options. If your last menu command produced a requester, then pressing a will produce that same requester, without the need for menu selections.

Sunrise in the Rockies

In this exercise, we make the sun rise *behind* the mountains, so we need to lock every colour except the sky. Here's how:

- Display the Make Stencil requester. (Colour 8 should be the only unlocked colour in the requester.) Now click Colour 8 to lock it, and then click Colours 0 (black) and 12 through 16 (the sky colours) to unlock them. (Colour 12 is halfway down the second column, and Colour 16 is at the top of the third column.) Click Make.

You have now locked every colour in the landscape except the sky colours. Now let's make the sun rise:

- Choose **Stencil>On/Off** from the Effect menu to turn the stencil off.

In DeluxePaint V, your stencil affects picking up a brush — you can only pick up areas that are not in the stencil. Since the orange shades in the sun are part of the stencil, you turned off the stencil momentarily to pick up that area of the picture.

- Click the Brush Selector, move the large cross-hair over to the sun image (on the far right of the screen) and pick it up with the left mouse button. Move the brush over to the mountain range.

- Choose **Stencil>On/Off** from the Effect menu to turn the stencil on.

Did you see the sun move *behind* the mountains and then peek through? This is because every colour — except the sky colours and the background— is locked, and so will not accommodate the sun brush. When you are satisfied with the placement of the sun, click to stamp an image of it there.

Cutting Some Z's

In this exercise we will explore further aspects of DeluxePaint's powerful stencil editor. In particular, you'll see how to turn stencil colours on and off from any part of your picture, not just from the Make Stencil requester.

- Display the Make Stencil requester and click Clear to clear the stencil. Now move the cursor outside the requester and click the large Z shape. Click Invert and then click Make to return to the painting screen.

Did you notice that when you clicked the Z the Make Stencil requester responded by locking that colour? This means that you can lock and unlock colours directly from your image just by clicking them. Note that clicking with the left mouse button adds a colour to the stencil and clicking with the right mouse button deletes a colour from the stencil. And to make it easy to find the colours you want to lock or unlock, you can move the Make Stencil requester to any part of the screen just by moving the cursor to the top of the requester, pressing the left mouse button, and dragging it to a new position.

Now let's see what we can do with the stencil we just created:

- Press the ` (accent grave/tilde) key to turn off the stencil.

Pressing ` is the same as choosing **Stencil>On/Off** from the Effect menu. This is a very important keyboard equivalent for working with stencils.

- Click the Brush Selector and pick up the textured area to the right of the Z.
- Press ` to turn on the stencil.
- Move the cursor over to the Z and watch what happens.

Did you see the textured brush appear behind the Z? Because all the colours except the Z are locked, it looks like you're viewing the textured brush through a Z-shaped window. Now, when you place the textured brush behind the Z and click, you will fill the Z with the textured pattern.

Fixing the Background

By using a combination of stencils and fixing the background, you can define a stencil by area rather than colour. This lets you confine a stencil to a particular area of the page, without forcing you to lock every instance of a particular colour. Let's take a closer look:

- Make sure the stencil is off and then pick up the small clump of pine trees from the right-hand side of the page. From the Effect menu, choose **Background>Fix**.

You have just fixed the picture to the background (the "B" in the Title Bar tells you so), which means you can always return to that picture by clicking CLR. Thus, you can stamp pine trees all over the landscape and then return to the original picture at any time. You can also fix the background successively, updating the picture from the previous "fix." (As we saw earlier, you can use the "Again" key (a) to repeat the immediately preceding menu command.)

- For the purpose of this exercise, go ahead and stamp a few clumps of pine trees in front of the closest mountain range. Now let's turn that collection of pine trees into a stencil:

- From the Effect menu, select **Background>Lock FG**.

This last action turned the foreground (i.e., everything you added to the picture since fixing the background) into a stencil, but without affecting any other part of the picture that uses those same colours. Try it and see. Move your pine-tree brush over to the pine forest and you'll see that your brush goes behind the forest but in front of everything else. You can remove this stencil either by turning the stencil off or making a stencil by locking colours.

The colour and area methods are mutually exclusive, so using one method automatically negates the other. And as is the case with regular stencils, clicking CLR does not clear the stencilled area — it is protected until you turn it off, just like the fixed background.

Painting a Stencil

A more powerful way to define a stencil by area is to "paint" it. You can do this with DeluxePaint V's **Stencil>Paint** option. Painting a stencil can be invaluable for protecting areas that are not easily defined by colour. In the next few steps we'll show you how to "cookie-cut" an area of your image to create the first of the two logos in the StencilSet image.

- At this point you should still be working with the StencilSet picture from the exercise above. If you still have Fixed Background active from the previous exercise, choose **Background>Free** from the Effect menu.

- Choose **Stencil>Make** from the Effect menu. Click Clear and Make in the requester to clear your stencil.

When you use Stencil Paint, you can either add to an existing colour-based stencil or you can start from scratch. When you choose this option, DeluxePaint calculates the stencil based on the colours that are selected in the Make Stencil requester and then presents you with a screen that you can use to add or subtract areas from. So, to start from scratch, you need to clear the Make Stencil requester as we did above.

In the next few steps, you'll pick up a brush to paint in the stencil with and turn on Stencil Paint to paint down your stencil. Then you'll reverse the stencil and pick up a new brush.

- Click the Brush Selector tool and pick up the red, yellow, and green logo as a custom brush.

- Choose **Stencil>Paint** from the Effect menu.

In a moment, your image is dimmed and a lower-case "s" appears in the Menu Bar to show that you are in Stencil Paint mode.

- Move your brush over to the mountain range so that the sunrise is in the lower part of the circle and click with the left mouse button.

Painting with the left mouse button adds to the stencil (which you see as lighter colours) and painting with the right mouse button subtracts from the stencil. By clicking down your brush, you created a stencilled area that is the shape of the brush. Now, exit Stencil Paint and reverse the stencil.

- Choose **Stencil>Paint** to turn off the mode and create your stencil.

It's important to correctly turn off the Stencil Paint mode the same way yo entered it. If you try to use other options while in Stencil Paint, DeluxePaint may turn off the mode for you, but there is no guarantee that in those instances it will save the changes to the stencil. If you think you'll be using this feature a lot, you should get used to the keyboard equivalent: `Ctrl-s`.

- Choose **Stencil>Reverse** to reverse your stencil so that all areas except the logo-shaped area of the mountain range is protected.
- Choose the Brush Selector tool. Pick up the mountain range as a brush. And press the ` (accent grave) key to turn off the stencil.

Now you should be holding a brush like the first of the logos in the StencilSet.

With a little creativity, you can combine Stencil Paint and the new gradient fills we showed you earlier in the chapter to create some stunning effects.

Stencils in HAM

When you're working in HAM or 24-bit backing store mode, the Make Stencil requester is a bit different from the one you see in other modes. This requester doesn't attempt to show you which of the possible colours you have locked. Instead, it gives you powerful ways to lock colours individually or based on a tolerance level. It then lets you view the stencil as you would by choosing **Stencil>Show**. In the next pages we'll take a quick look at the features of the Make Stencil requester in HAM mode.

❖ Due to the heavy computational and memory requirements of the Make Stencil option in HAM, this feature will be somewhat slow on lower-end Amigas. If your Amiga has no more than 2MB of RAM or 512K of Chip RAM, we recommend that you use the Stencil>Paint feature to create stencils in HAM. However, if you are patient, you might want to work through this section; it might be just the thing fo you.

Before we begin:

- Choose **Screen Format** from the File menu and change your screen fo mat to Lo-Res 320x200 HAM.
- If you don't already have the StencilSet picture loaded, load it now an choose NO to converting to the screen format of the file.
- Choose **Stencil>Make** from the Effect menu. You'll see a Make Stencil requester like the one in Figure 4.18.

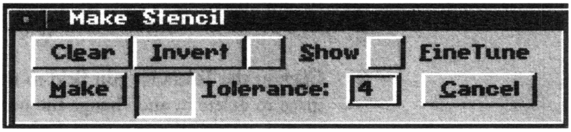


FIGURE 4.18 MAKE STENCIL REQUESTER IN HAM

The Clear, Invert, Make and Cancel buttons in this requester perform essentially the same function as they do in the Make Stencil requester in other modes. The important new concepts we want to show you are Show, Fine Tune, and Tolerance.

Tolerance

The tolerance setting lets you click on a single colour in your picture and simultaneously lock (or unlock) all "similar" colours in the image. The Tolerance number determines how different a colour can be and still be considered "similar" to the one you clicked on. A low Tolerance number requires that the colours be very similar, while a high Tolerance number locks colours that may be very different from the colour you clicked. The range of Tolerance values runs from 0 to 48. At 0 tolerance, only colours that are identical to the colour you click on will be affected. At 48 tolerance, all colours will be affected.

TECHNICAL NOTE Tolerance is calculated in the RGB cube colour space. Each increment of tolerance represents a change of 1 on any of the RGB values of the colour you clicked on.

To see how tolerance works in a practical application, we'll use it to lock the green colours in the StencilSet image. When you first open the Make Stencil requester, Tolerance is set at 4. We'll leave it at four as we choose our first colour.

- Move the cursor down to the bottom of the green grass area of the sunset image and click once on the lightest green.

Clicking on a colour with the left mouse button tells DeluxePaint that you want to lock that colour. Notice that the colour appears in a box beside the Tolerance option, and a black "lock" bracket appears beside the colour to show that you have locked it. You could click Make to exit the requester with your stencil, but instead, we'll use the Show button to confirm that we locked the colours we wanted.

- Click the Show check box to show your stencil.

After a moment of calculations, DeluxePaint will dim your image and show your stencil as lighter areas in the image just as if you had chosen **Show** from the Stencil submenu. You'll see that many more greens than the one you clicked on are stencilled. But not all greens are stencilled, because your tolerance was set to only 4. You'll also see that part of the green triangle from the Electronic Arts logo and the green of the trees is also stencilled.

Now suppose that you actually wanted to select more greens than the ones that were stencilled in this first attempt. You can do this in two ways: either click on another green that is not stencilled to lock it and all colours similar to it; or increase the Tolerance setting. Let's try the latter method now:

- Click in the Tolerance edit field to the right of the number 4, backspace to delete it, and change the number to 8. When you press Enter or click outside the requester, DeluxePaint automatically recalculates your stencil, and after a moment it shows you your stencil with the new tolerance value.

Now you'll see that two thirds of the greens are selected in your image.

❖ If you need to select a large area of your image quickly, high tolerance numbers can help you a lot. However, to get that help you sacrifice some control over which colours get stencilled. Of course, you can always go back and adjust the stencil with the Fine Tune option as you'll see below.

Fine Tuning the Stencil

Now that you've seen how to add to the stencil and use the Tolerance setting, we'll take a quick look at fine tuning the stencil. We're going to use Fine Tune to subtract a colour from your stencil, but you can also use Fine Tune to add colours to the stencil.

- Click the Fine Tune option to turn it on.
- Activate the screen by left-clicking on one of the greens not in your stencil.
- Move the cursor over to the middle of the stencilled grass and click with the right mouse button to subtract a colour.
- DeluxePaint recalculates your stencil and shows your stencil with the colour removed.

Fine Tune lets you add or subtract single colours from your locked set without having to change the Tolerance level. Fine Tune always adds or subtracts only the colour you click on, though you are certainly welcome to click on whatever colours you like.

Tutorial Six: Textures and Media

DeluxePaint and its creators have always tried to bring the best and latest computer graphics trends to all Amiga users. One of the latest trends has been to emulate natural media painting and compositing. Every major computer platform has a paint program that emulates natural media. We are the first commercial Amiga program to bring natural media painting and effects to all Amiga users, and no special additional hardware or files are needed. In this section you will learn how to use textured backgrounds, media libraries and how to best combine these tools with other DeluxePaint features to create some interesting natural looking artwork.

- Switch Screen format to Lo-Res HAM
- Load the file TextureMap.Lores from the Picture drawer of the Examples disk.
- Click No if the program asks you to change modes.

- Select **Palette>Default Palette** from the Colour Menu.
- Your map should turn to two shades of grey and black. Leave this as is.
- Open the Ranges colour panel or press Ctrl-`r`
- Click to range 2, then press the CLEAR button if there is a range defined.
- Select the light blue colour in your palette (colour 10) and place it on the left-most bead line.
- Slide the Range slider below the bead line all the way to the right.
- Select the purple colour in your palette (colour 13) and place it on the right most bead line.
- You should now have a gradient that goes from light aqua colour to a deep purple colour.
- Click OK to close the ranges colour panel.

Now let's create a stencil to lock out the continents when we do a gradient rectangle fill.

- Select **Stencil>Make** from the Effects menu or press the ~ key to bring up the Make Stencil requester.
- Click the Fine Tune check box, and left click on any continent (the dark grey colour).
- Click on the Make button in the requester to create a stencil for the continents.
- Select **Texture>On/Off** from the Effect menu. (When you select this choice for the first time in your work session, DeluxePaint will automatically bring up the Load Texture window and turn on the texture for you once it is loaded.) Select the BrushStroke texture from the Textures directory of the Media disk. You now have a textured background loaded into memory.
- Right-click on the Filled Rectangle tool to bring up the Fill Type requester.
- Choose the standard Vertical Fill and the Smooth Dither gradient. Make sure the blue gradient you created is the current gradient. Click OK to choose the filled rectangle tool.
- Press F10 to turn off the Menus and Toolbox.
- Take your cursor and create a filled rectangle from the bottom right corner of your image to the top left corner of your image. In a moment you will see that DeluxePaint has allowed you to create a textured fill with a gradient. You need not combine the texture with a gradient, but as you can see the effect is a very nice one. You can repeat this process one or two more times and DeluxePaint will act as if your are building up layers of paint on a textured background.
- You won't need your stencil anymore, so choose **Stencil>Free** from the Effect Menu.
- Select **Texture>Load..** from the Effect menu and load the EmbossedHair texture file.

- Press F10 to turn on the toolbar if it isn't on already. Select the light green colour in your toolbox palette.
- Bring up the Fill Type requester by right clicking on the fill tool or pressing `F` (Shift-`f`). Choose Solid and click OK to choose the Fill tool.
- Click on the continent of Africa with the Fill tool. You should see a hair-like texture fill the area you clicked on.
- Choose another colour, load up another texture and fill another continent or go on to the next step when you are ready — don't let us interrupt your creative endeavours.
- Press `j` to swap to the spare page or select **Spare>Swap** from the Picture Menu.
- Load the WorldMap.Lores file from the Picture drawer of the Examples disk. Click No at the change format message.
- Press `j` to swap back to your TextureMap image. Load the Wall file from the textures drawer of the Media disk.
- Turn on Translucency (Alt-`t`). It should be set to 50% by default.
- Select **RubThru** from the Mode Menu. Press F10 to turn off the menus and toolbar.
- Select the sketch tool (press `s`) and start rubbing through part of North America. Because you have translucency on you are not rubbing through a full opaque image; only 50% of the image (or whatever your translucency settings are) rubs through. The amount rubbed through is also being affected by the texture currently loaded. You can turn off the texture to see the difference in how it reacts as you paint. You can also try different combinations of having the translucency off, process on, etc.
- Select **Colour** from the Mode menu or press F2.

Now let's see what effect media types have on images. Please note that media type libraries will not work by themselves, they require that you have a texture loaded into DeluxePaint V.

- Select **Media>Open...** from the Effect menu and load the file Chalk from the media drawer of the media disk.
- Choose the Sketch tool or your preferred drawing tool and start drawing some lines on the screen. You'll notice that you get a slow build-up of colour depending on what your current colour is and what texture you have loaded. Change your foreground colour and draw again.
- Load the felttip media library as you did the chalk one. Drawing on the screen with this media library will affect the colours underneath your brush more rapidly than the chalk brush, and the colours under your brush will lean to dark values very quickly, just as a dirty felt tip pen going over other colours would.

The other media libraries will give you different effects. Oil will mix much more with the colours underneath your brush just like an Oil Pastel. Watercolour will give you a soft textured tint of the current foreground colour.

Experiment with these and any other media libraries, we've made Media libraries and Textures as flexible and customisable as possible. The combinations of effects in DeluxePaint V are endless, so be creative and experiment with as much of the program as you can. With a little practice you'll be creating digital masterpieces in no time.

Tutorial Seven: Using Macros

In the following tutorial, you'll learn how to record your actions as macros. Once you record a macro, you can save it to a file, edit it, and execute it as many times as you need. Macros are great timesavers for repetitive tasks.

Recording Your Actions

The Record Macro command lets you record your keyboard and mouse actions and save them as a macro you can execute from the User menu.

Menu commands

Sure, DeluxePaint has many keyboard shortcuts, but there are probably some menu commands that you use frequently that don't have a built-in keyboard shortcut. You can create your own macros to bring up requesters at the touch of a button. Let's create a macro for bringing up the Load Media requester.

- Choose **Record Macro** from the Macro menu. Your actions are automatically recorded from the time you select this menu command (and the menu item is checked while recording) to the moment you reselect **Record Macro**.
- Choose **Effect>Media>Open** to open the Load Media requester. Select a Media file if you wish to open one; otherwise click Cancel (it doesn't matter which action you take for the purposes of our macro).

❖ You can record your mouse and keyboard actions when using DeluxePaint menus and requesters, but you can't record file-specific actions such as opening a Media file. That's why it doesn't matter whether you click OK or Cancel in the preceding step.

- Choose **Macro>Record Macro** again to stop recording the macro. The Assign Macro requester appears.
- Select macro slot Macro #1 and press OK.
- To test the macro you just created, select **User>Macro #1** (or type A-1). The Load Media requester appears. You just created a macro! For the remainder of your DeluxePaint session, you can type A-1 to bring up the Load Media requester without having to select it from the Effect menu.

Automatic Signature

Let's try something a little more fun. How about recording your signature so you can automatically put your signature on a painting?

- Make sure that the Record Details option in the Macro menu is *not* checked (it is checked by default). This will reduce the size of our macro file.
- Choose **Record Macro** from the Macro menu.
- Click on the smallest brush in the Toolbox (the 1-pixel brush in the upper left corner).

- Write your name in the lower right corner of the screen.
- Choose **Macro>Record Macro** again to stop recording the macro. The Assign Macro requester appears.
- Select macro slot Macro #2 and press OK.
- Clear the screen, and then select User>Macro #2 (or type A-2). Your signature is written on the lower right corner of the screen.

◆ Recording your signature is hardly the most useful task you can assign to a macro. Try recording and saving actions such as drawing a figure and then cutting it out as a brush.

Saving and Loading Macros

Now that we've recorded a couple of macros, let's experiment with saving and loading macros.

Saving a macro

The macros you've created so far are stored only in RAM — if you exit the program, they will be lost. Let's save the first macro to disk so we can permanently assign it to a macro slot.

- Select **Save As...** from the Macro menu. The Save Macro requester appears.
- Click the Macro #1 radio button, and then click OK. A standard Amiga save requester appears.
- Type the filename `LoadMedia.dprx` in the File text gadget. (Macro files should use the .dprx extension.) Click OK to save the file.

Loading a macro

After you save a macro to disk, you can assign it to any of the ten macro slots. If you save your preferences to disk before exiting the program, any assigned macro files will automatically be loaded into their respective slots. Thus, you can keep up to ten macros assigned to the keyboard shortcuts A-1—A-0 at any one time. In the following exercise, we'll load the macro file we just created into the first macro slot.

- Select **Load...** from the Macro menu. The Load Macro requester appears.

❖ You may notice that our LoadMedia.dprx file is in fact already placed in the Macro #1 slot — DeluxePaint automatically places the macro file in the appropriate slot when you save a macro. But we'll pretend that you're loading a macro file from the beginning.

- Each of the ten macro slots has a question mark (?) to its right. Clicking this button brings up an Amiga file load requester for the respective macro slot. Click the ? button to the right of Macro #1. A Load Macro file load requester appears.
- Double-click on the file LoadMedia.dprx. The macro file we created above is selected, and you return to the Load Macro requester.
- Click OK to accept the macro assignment.

You have now created a permanent macro file and assigned it to the first macro slot. However, if you quit the program now, no macros will be assigned when DeluxePaint is restarted. If you want to save your macro assignments permanently, choose **Prefs>Save** to save all your DeluxePaint preferences settings as tooltypes.

❖ Only macro files that have been assigned to macro slots are saved as tooltypes. If a macro has been created in memory but not saved to a file and assigned to a slot, the macro will be lost even if you save your preferences before you exit DeluxePaint.

In this tutorial, you've learned how to record your actions and save them to macro files that can be assigned to keyboard shortcuts. However, you can do much more with ARrexx macro files than simply record and play back your actions. You can also write your own macro scripts from scratch, or edit macro files recorded in DeluxePaint. See the ***Appendix F*** for more on the world of ARexx macros.

Chapter 5

WORKING WITH PERSPECTIVE

This section explains DeluxePaint's powerful Perspective mode. Perspective lets you paint in three dimensions, which can give your pictures a true feeling of depth. Perspective is a complex feature, so we strongly recommend that you become familiar with the program before you venture into this area. We've tried to make this explanation as clear as possible, but be aware that the steps we list assume that you understand other program features.

Three-Dimensional Model

When you paint in Perspective mode, you are working with a three-dimensional representation of the two-dimensional space that is available on your screen. To visualise this model it might help to think of your computer screen as the front side of a box.

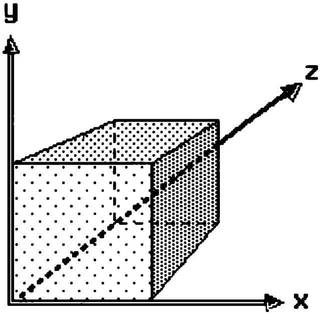


FIGURE 5.1 THE 3D SPACE AND SCREEN COORDINATE SYSTEM

Usually, when you paint, the mouse moves your brush in only two directions: horizontally and vertically. But when you move and rotate your brush in Perspective mode, you add a third direction to the motion: backward and forward. To move the brush into the distance or towards you, you'll move it on the Z axis of the system shown above.

You'll learn more about the coordinate system later in this chapter. For now, just remember that in its default settings, the screen coordinates operate as shown in Figure 5.1; the X axis runs horizontally across the screen, the Y axis runs vertically, and the Z axis runs backward into the screen.

Rotating a Brush in 3D Space

The key to working in Perspective is rotating the brush. In this brief section, we'll show you how to rotate your brush using the *numeric keypad.* Before you begin, you need a brush to rotate.

- Load the Dolphin brush from the Media disk.
- If you are NOT in HAM, choose **Palette>Use Brush Palette** from the Colour menu. If you are in HAM, move to the next step.

After you have a brush, you can enter Perspective mode.

- Choose **Perspective>Do** from the Effect menu to enter the Perspective mode.

A small cross-hair appears in the middle of the screen to indicate the Perspective Centre (or line of view), and your brush is enclosed in a *wire-frame* with a large cross-hair over it. In our example, you will also see three zeros on the right half of the Title Bar. These indicate the current rotation angles of the brush. The numbers are all zeros because we haven't rotated the brush yet.

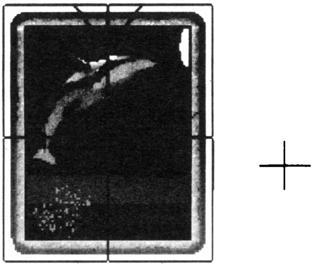


FIGURE 5.2 SCREEN IN PERSPECTIVE MODE

The cross-hair on your brush makes any brush rotations easier to see, and it will help you position the brush when it changes sizes. An important feature of the cross-hair is that it indicates the X and Y axes of the brush. The Z axis of the brush runs perpendicular to the other two axes, just like the screen's Z axis. Figure 5.3 shows the Brush axis system.

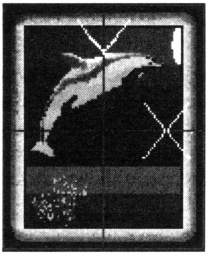


FIGURE 5.3 BRUSH CROSS-HAIR AND COORDINATE SYSTEM.

To rotate the brush, use the numeric *keypad* on the right side of your keyboard. Figure 5.4 shows how each of the keys rotates the brush.

❖ All numerical keystrokes in Perspective mode refer to the *numeric keypad.* You'll use the keypad to rotate images. Sometimes you'll use the Shift key in combination with the keypad to rotate an object a fixed number of degrees (more about this in *Angle Step*, below).

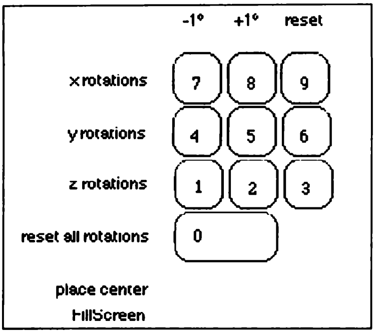


FIGURE 5.4 BRUSH ROTATIONS MAPPED TO THE KEYPAD.

We'll try each of the rotations in the next few steps so you get a feel for moving in 3D. We'll start off with the simplest rotation, that is, a rotation on the Z axis with the brush in its normal 0,0,0 orientation. This is the simplest rotation, because no part of the brush moves off the plane of your computer screen.

- Hold down 2 on the *keypad* for about 5 seconds.

The Dolphin disappears and the wire frame rotates clockwise on its centre (the position of the pointer). Notice that the third number along the right side of the Title Bar has increased as the rotation angles increased. Figure 5.5 illustrates rotation on the Z axis.

- Press 1 repeatedly until the numbers along the right side of the Title Bar show 0, 0, 0 as the brush rotation.

When the brush is back to the 0, 0, 0 position, the Dolphin reappears inside the frame. This is a handy visual cue that the brush is at its original orientation. Later, when you begin moving the brush in three-dimensional space, you'll see that the same rule applies to movement — if the brush is back on its original plane it reappears inside the frame.

❖ Displaying the brush is dependent on memory availability; your brush may not appear even when in its original orientation if it is large or memory availability is low.

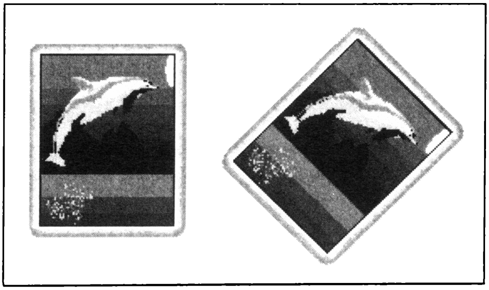


FIGURE 5.5 BRUSH ROTATION ON Z AXIS.

Rotating on the other axes works just like rotating on Z, but when you rotate on the other axes, the brush moves off the plane of the screen and into the third dimension. Let's see how this works by rotating on X.

- Move (*don't drag*) the brush to the lower left corner of the screen. Hold down 7 on the keypad.
- When the brush frame has rotated to about -45°, release the 7 key, and click to paint the brush.

As you rotate the brush on the X axis, it appears as though the top half of the brush is turning into the screen and the bottom half is turning outward. As a result, your painted brush is set at an angle to the screen as shown in Figure 5.6.

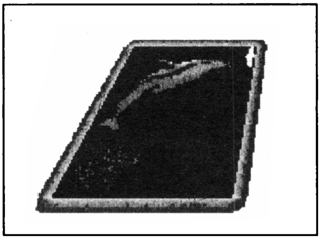


FIGURE 5.6 BRUSH ROTATION ON THE X AXIS

- To return your brush to its original orientation, press 0.

Resetting the Brush Rotation

The last step introduced an important keystroke. Any time you need to reset the brush to its original orientation of 0,0,0, press 0 on the keypad. If you get lost in the world of 3D, you can always get back to the beginning with this simple keystroke.

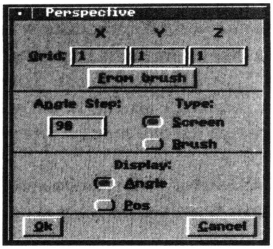
The Angle Step

To rotate on the Y axis, you use 4 and 5 on the keypad. This time we'll use the Shift key to rotate by a larger increment, automatically.

- Move your brush to the lower right corner of the screen. Hold down the Shift key and press 4 on the keypad. Your brush instantly rotates -90° on the Y axis. Click to paint the brush.
- Press 0 on the keypad to return the brush to its original orientation.

When you use the Shift key with one of the keypad keys, the brush rotates by the Angle Step. The default Angle Step is 90°, but you can change it to any angle you like in the Perspective requester.

- Choose **Perspective>Settings** from the Effect menu to display this requester, or right-click on the Grid tool while you are in Perspective mode.


Perspective

X Y Z

Grid: 1 1 1

From brush

Angle Step: 90

Type:
● Screen
○ Brush

Display:
● Angle
○ Pos

Ok Cancel

FIGURE 5.7 PERSPECTIVE REQUESTER

When using perspective, 90 degrees is the most common angle, so leave it there for now.

- Click OK to return to the painting screen

Rotation around the Handle

When you rotate a brush in Perspective, the rotation always occurs around the brush handle. In the preceding examples, the brush was held by the centre (the default position), so the rotations always occurred around the centre of the brush. Let's look at the difference between rotation around the centre and rotation around the corner of the brush.

- Click CLR to clear the screen. Position the brush near the middle of the screen. Hold down the Shift key and press 2 on the keypad to rotate 90° on the Z axis. Press Shift-2 three more times to set the brush back to 0,0,0, or press 3 on the keypad to reset the Z axis.

You've seen this rotation before, but we had you repeat it to compare this with rotation around the corner of the brush.

- Keep the brush in the same location. Press Alt-x on the keyboard.

This moves the brush so that it is held by the lower right corner. Note the position of the arrow cursor. You can also do this by choosing **Handle>Rotate** from the Brush menu.

- Press Shift-2 to rotate the brush around the new handle position.

Figure 5.8 illustrates the difference between rotation around the centre and rotation about the corner.

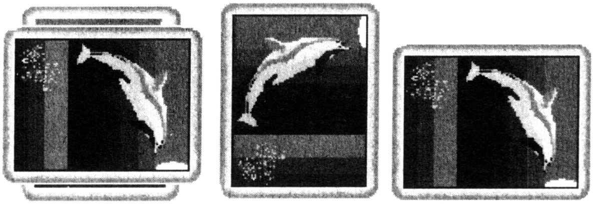


FIGURE 5.8 ROTATING A BRUSH WITH THE HANDLE AT THE CENTRE AND AT THE CORNER OF THE BRUSH.

Screen Verses Brush Coordinates

So far in our discussion of brush rotations, we've always rotated the brush on one of the two possible coordinate systems. If you look back to Figure 5.7, you'll see that below Angle Step in the Perspective requester there is an item labelled Type with two buttons: Screen and Brush. We've been rotating in the Screen coordinate system. In the next few steps, we'll demonstrate the difference between the two rotation systems.

INFORMATION ☐ If you are familiar with rotation systems, you'll recognise that this Screen coordinate system is based on Euler angles.

Before beginning this brief example, make sure your screen is clear. When it is:

- Choose **Handle>Rotate** from the Brush menu (or press Alt-X until your handle is at the centre); and press 0 to reset your brush to its original orientation.

To make this example clearer, it will help if the Angle Step is set to something other than 90°. In the next step we'll have you change it to 45°.

- Choose **Perspective>Settings** from the Effect menu (or right-click the Grid icon) to display the Perspective requester.
- Click in the right side of the Angle Step edit field, backspace to erase the 90 setting and type 45. Click OK to close the requester and use the new setting.

Now let's try a rotation in the screen coordinate system:

- Position your brush in the lower left corner of the screen. Press Shift-2 to rotate 45° on the Z axis. Now press Shift-7 to rotate -45°on the X axis.
- Click to paint the brush down.

Notice that when you rotated the brush on the X axis, the Screen's axis was used. The brush's X axis was tilted sideways, but the brush still rotated backward into the screen. Also notice that the rotation angles appear in the Title Bar.

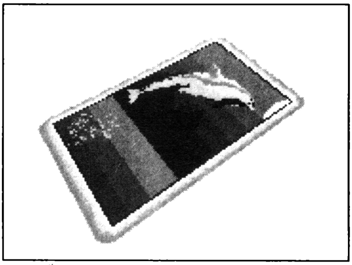


FIGURE 5.9 ROTATING THE BRUSH 45° ON Z AND X IN SCREEN COORDINATES

Now we'll change the setting to Brush angles and do the same rotation to see the difference.

- Right-click the Grid tool to display the Perspective requester. Click the button labelled Brush and click OK.
- Press 0 to reset your brush to its original orientation.
- Position the brush in the lower right corner of the screen. Press Shift-2 to rotate 45° on the Z axis. Now press Shift-7 to rotate -45° on the X axis.
- Click to paint the brush down.

In the Brush coordinates system, rotations always take place about the brush axes, regardless of the current orientation of the brush. In this example, the X axis was positioned diagonally after you rotated 45° on the Z axis; as a result, the brush rotated on the diagonal axis instead of rotating straight backward into the screen.

You'll also notice that the angles shown in the Title Bar are not the angles that you rotated. The Title Bar always shows the rotation angles for the *Screen* coordinate system. This allows you to reproduce your brush rotation by switching to Screen angles and rotating the amounts indicated in the Title Bar.

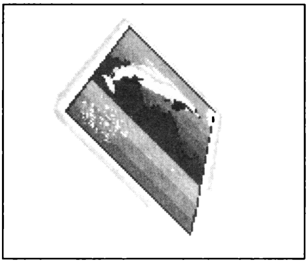


FIGURE 5.10 ROTATING THE BRUSH 45° ON Z AND X IN BRUSH COORDINATES.

DeluxePaint offers both Screen and Brush coordinate systems for rotation, because each of the systems has unique merits:

The Screen coordinates system is often consistent with the notion of the three screen coordinates defining the 3D space. More importantly, the Screen coordinates system is reproducible: you can jot down the rotation numbers in the Menu Bar and reproduce the same brush orientation simply by rotating to the same angles. The results of multiple rotations are the same no matter what order you rotate in.

The Brush coordinates system is usually easier to visualise if you are rotating at angles other than 90°. So you can usually produce the desired brush orientation without much difficulty. Unfortunately, the cumulative effect of separate rotations on the brush axes are not reproducible unless you make the exact same rotations in the exact same order. You'll notice that the angles given in the Menu Bar when you rotate using the Brush coordinates are actually the angles for the Screen coordinates system; this is so you will be able to reproduce your brush rotation, though you will have to use Screen angles to do it.

Now that you've seen how to rotate your brush in three dimensions, the next section will show you the ins and outs of moving a brush around in all three dimensions.

Moving in 3D Space

Before you begin this section clear the screen.

- Choose **Perspective>Reset** from the Effect menu to reset all perspective settings, *including* Angle Type, to their defaults.
- Load the brush named Block.brush from the Media disk. Choose **Palette>Use Brush Palette** from the Colour menu.
- Make sure you are in Perspective mode.

Moving on the Z axis

When your brush is in its original orientation (0, 0, 0), moving your mouse moves your brush along the X and Y axes. Try it right now:

- Move your mouse forward and watch how your brush moves up on the screen. Move your mouse backward and your brush moves down on the screen. Likewise, moving the mouse left or right moves the brush left or right.

Because your mouse can move in only two dimensions (the third direction would require you to lift it off the desk), it can move your brush in only two directions. You can move your brush in the third dimension by using the keyboard. One method is to move the brush straight back along the Z axis only:

- Position your brush in the lower left corner of the screen, hold down the Shift key and press the quote key (") several times.

Each time you press Shift-", the brush moves backward along the Z axis. It appears as though the brush is getting smaller, but in fact it is moving away from the front of the screen. To move the brush forward along the Z axis, you use the colon key(:).

- Hold down the Shift key and press the colon key (:) once.

Notice that the " and : keys move the brush toward and away from the cross-hair in the middle of the screen. This cross-hair defines the Perspective Centre, which is best thought of as the point of view. No matter where you place the brush on the screen, if you move the brush using the quote key, the brush will move into the distance and toward the Perspective Centre.

When you use Perspective, you'll often want to move your brush backwards and left and right along a plane. The effect is of a brush moving across the floor. DeluxePaint lets you do this by holding down the Ctrl key while in Perspective.

- Press 0 to reset your brush to its original orientation.
- Position the brush near the bottom of the screen, hold down the Ctrl key and move your mouse forward and backward.

With the Ctrl key held down, the brush moves away along the Z axis when you move the mouse forward. In this way, you can easily move in the X and Z axes instead of the usual X and Y axes.

3D Coordinates

DeluxePaint V lets you see the position of your brush in three dimensional space when you are in Perspective mode. This is useful if you need to align your brush precisely.

- Press the \ key and look at what happens to the angles in the right side of the Title Bar. Now hold down the Ctrl key and move the mouse forward and backward.

Pressing the \ key toggles the Display option in the Perspective requester between Angle and Pos (position) (see Figure 5.7).

- Press the \ key again to return to displaying angles in the Title Bar.

Laying down the brush to move in 3D

Another way to move into the distance is to lay the brush down and then move it on its own Y axis. Rotating the brush 90° on its X axis makes the brush's Y axis act like the screen's Z axis. Figure 5.11 shows what happens to the different axes during perspective rotation.

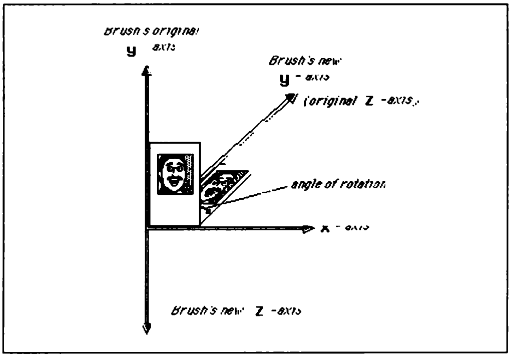


FIGURE 5.11 BRUSH COORDINATE SYSTEM BEFORE AND AFTER ROTATION

Let's try it once to see how it works.

- Press 0 to reset the brush to its original orientation and position the brush in the lower left corner of the screen.
- Press Shift-keypad 7 to flop the brush down into the screen. Now move the mouse around.

You will quickly discover that moving the mouse forward and backward moves the brush into the screen and back out instead of up and down. This is because the mouse moves the brush on the plane defined by the brush's X and Y coordinates.

- Move the brush to any new position and press Shift-keypad 8 to turn i back up on end. Paint the brush down.

- Use the combination of Shift-keypad 7 and Shift-keypad 8 several times until you are comfortable with how these keys help you move in the third dimension.

Perspective Plane

You might have noticed that when you flopped the brush down by rotating on its X axis, the brush moved on a plane below the Perspective Centre. Remember that when the brush is in its original 0, 0, 0 orientation, it moves on a plane that is roughly the equivalent of the computer screen. When you rotate the brush, you change the orientation of the plane. The plane can be at almost any angle to Perspective Centre. The easiest way to see this is to fill the perspective plane you've defined.

- Press 0 to reset your brush. Position the brush so that your cursor is at the bottom of the screen.

- Press Shift-7 to rotate the brush on the X axis.

- Choose **Perspective>FillScreen** from the Effect menu and watch as DeluxePaint fills the perspective plane with a pattern of your brush.

The results of this last step should look something like Figure 5.12.

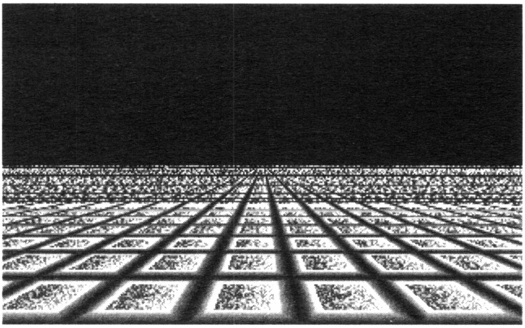


FIGURE 5.12 PERSPECTIVE PLANE PAINTED USING PERSPECTIVE>FILLSCREEN

As we said, you can set your perspective plane at almost any angle to the Perspective Centre. In the next step, we'll draw a plane to the right of centre with the brush rotated sideways. This will create a "wall" on the right.

- Press 0 to reset your brush to its original orientation. Place the brush i the lower right corner of the screen.
- Press Shift-4 to turn the brush into the screen.
- Choose **Perspective>FillScreen** from the Effect menu.

Practice creating different planes. For example, position the brush above perspective centre to create a "ceiling" from your brush.

The Perspective Horizon

The position of perspective centre plays an important role in determining the angle of the plane to the viewer. It also determines the horizon point. The horizon point is the farthest edge of the plane when you rotate a brush to 90°. To demonstrate how this works, we'll load a picture that has a horizon, and fill the plane out to the horizon.

- Load the picture Seascape from the Examples disk and choose **Palette>Default Palette** from the Colour menu.

You might remember this picture from the Guided Tour. In the picture, the ocean stretches to a flat horizon on the right side. We'll set our Perspective Centre in line with this horizon and then fill a perspective plane.

- Choose **Perspective>Centre** from the Effect menu. Your cursor changes to a large cross-hair.
- Position the cross-hair so that it is half way across the screen and so the horizontal line of the cross-hair lines up with exactly the horizon in the picture. Click to place the perspective centre.
- Now, load your Block.brush brush, and enter Perspective mode.
- Press Shift-7 to rotate your brush -90°.
- Choose **Perspective>FillScreen** from the Effect menu to fill the perspective plane.

When you are done, your screen should look like Figure 5.13. Notice that the horizon of your perspective plane exactly matches the horizon of the original picture.

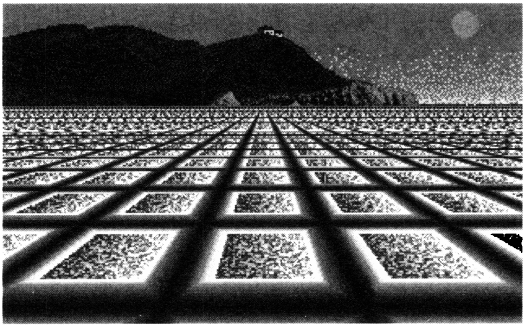


FIGURE 5.13 SEASCAPE WITH A PERSPECTIVE PLANE ADDED.

The Angle of the plane

In the example above, the perspective plane matches the horizon because you rotated the brush by 90°. If you had rotated by more than 90° the plane would not reach the horizon, as though the plane sloped downward. If you had rotated by less than 90°, the plane would extend above the horizon, as though it sloped upward like a mountain. It is difficult to see the differences unless you have an existing horizon to compare the plane with. Without an existing horizon, the sloping of the plane will appear to be only a difference in the distance between the position of the brush and the perspective centre when the brush was rotated.

When you create a perspective plane, the position and angle of the plane are determined by three things:

- ☐ The position of the Perspective Centre;
- ☐ the position of the brush handle (cursor) when you rotate the brush;
- ☐ and the degree of rotation.

In our examples above, we rotated the brush in 90° increments so the plane was always either parallel to our point of view or at a right angle. If you want to create a sloping surface, you do so by rotating the brush to an angle less than 90°. Here's a quick example.

- Choose **Perspective>Reset** from the Effect menu or press Shift-keypad 0.
- Position your brush so that the cursor is at the very bottom of the screen. Hold down 7 on the keypad until the brush has rotated -60° on the X axis.
- Move the mouse forward and backward to see how the brush moves on this new plane.

You'll notice that the vanishing point of the brush is above the horizon in your picture, this is because the plane is not parallel to the point of view. It is as though you were looking at a gradual incline.

Putting Things in Perspective

We've covered the fundamentals of perspective. Now it's time to put what you've learned into practice. In this exercise, we'll create a perspective landscape and build a three dimensional arch as shown in Figure 5.14. In the process, you'll learn some of the tricks about using perspective that you c only understand when you see them in context.

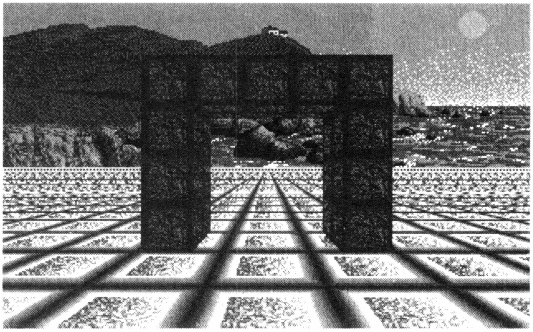


FIGURE 5.14 SEASCAPE WITH ARCH.

Creating the Plane

The first step of our tutorial is to create a perspective plane. You don't need to create a plane every time you use perspective. We're doing it here, so you can readily see the "depth" of your picture.

- Load the Block.brush brush from the Media disk.

Notice that this brush is held by the lower right corner. If you expect to use a brush in Perspective, it is best to save the brush with the handle in the lower right corner for two reasons:

1. Rotations always occur around the handle, so holding the brush in the corner helps make the rotations consistent and useful.
2. If you establish a Perspective grid, you can make all of your brushes conform to that grid if their handles are in the same corner.

- Choose **Coords** (short for Coordinates) from the Prefs menu or press the | key (Shift-\).
- Press the Enter key on the keypad to enter Perspective mode.
- Position the cursor at 196, 25 and press Shift-G, which turns on the grid and uses 196, 25 as one of the grid points.

❖ If you turn on Coordinates and take note of the cursor position before you rotate your brush, you'll be able to recreate the perspective plane exactly.

- Press Shift-Keypad 7 to rotate the brush -90° on X.

Notice that at this point you don't have angles in your Title Bar. You can turn off Coordinates if you want to see the angles, but you don't need them for this exercise, since all of our movements are on 90° and based on sight, not numbers.

- Choose **Perspective>FillScreen** from the Effect menu.

Building the Arch

- Load the RedBlock brush from the Media disk.

At this point you are no longer in Perspective mode, but the Grid is still on.

- Press the Enter key on the keypad to enter Perspective mode.

Your brush is automatically laid down on the perspective plane in the same orientation you left it in last (that is, rotated -90° on the X axis). This is an important point to remember, because it means that you can easily bring in new brushes at the right perspective simply by loading them with the perspective plane defined by the previous brush.

❖ You'll notice that the grid has been adjusted to your new brush size. It is not necessarily true that your new brush will line up correctly with the grid point you used to define the plane (196, 25), because the brush handle is tied to the closest grid point when you enter perspective, and there is a three-in-four chance that it will be tied to one of the other corners. If you want the brush to line up with the grid point you specified when you created the grid, press Keypad 0 to reset the brush to 0, 0, 0 orientation, align the handle with the grid point, and rotate the brush again.

If you don't want your perspective grid automatically sized to new brushes, turn off the **AutoGrid** option in the Prefs menu.

- Press G to turn off the Grid so you can move the brush freely on the plane.
- Position the brush so that the Y axis of the brush is aligned with the Perspective Centre and the bottom of the brush is aligned with the edge of the second full row of tile on the floor. (The coordinates will show this point as 175, 46)
- Press Shift-G to turn on the grid and use your new handle position as one of the grid points.
- Press Shift-Keypad 8 to rotate the brush up on the X axis. Move the brush two grid points to the left and stamp it down. Paint the brush three times above the current brush position so you create the face of a column.
- Paint the brush four times to the right to form the top of the arch and the top of the right column. Then paint the brush three times down to form the right column.

At this point you have a two dimensional arch on a three dimensional plane. Our next task is to give the arch a third dimension.

- Move the brush so that it is directly on the bottom block of the left column of your arch. Press Shift-Keypad 4 to rotate the brush -90° on the y axis. Paint the brush where it is and twice above to form the left side of the column.
- Move the mouse a bit to the right to move the brush back along its x axis and paint another set of blocks so your column is one block wide at the face and two blocks deep as shown in Figure 5.14.
- Press Shift-Keypad 5 to rotate the brush back on its Y axis so that it is facing you head on. If the brush is not the same size as the facing blocks of your arch, hold down the Ctrl key and move the mouse forward or backward to bring it closer or move it back.

As we explained in ***Chapter Five, Using Perspective,*** the Ctrl key temporarily fixes the Y axis of your brush so that you can move it on its Z axis. As you become adept at painting in Perspective, you'll find yourself using this key often.

- Position the brush to the left of the bottom block of the right column. Press Alt-x to change the brush handle to the other side of the brush.

Your brush jumps so that it is over the bottom block of the right column, but the brush is now held by the lower left corner. Remember that Alt-x repositions your brush handle. This keyboard equivalent is especially useful while working in Perspective, since you usually don't want to move your mouse to choose from a menu.

- Press Shift-Keypad 5 to rotate the brush 90° on the Y axis. Paint the brush where it is and twice above to form the left side of the column. Paint another column just behind this first one so your column is one block wide at the face and two blocks deep.
- Press Shift-Keypad 4 to rotate the brush back on the Y axis. If the brush is not the same size as the facing blocks of your arch, hold down the Ctrl key and move the mouse forward or backward to bring it closer or move it back.
- Move the brush up so that it is over the block in the upper left corner of the arch. Press Shift-Keypad 7 to rotate the brush -90° on the X axis. Move the brush to the right and stamp it once below each of the three blocks that form the top of the arch. Paint another row just behind this first row so the top of your arch is one block high and two blocks deep.

Now your arch is complete and should look just like the arch in Figure 5.14.

Inserting the Seascape Picture

To give your perspective painting a bit more colour, and a landscape for the background, we'll load the Seascape picture and add it behind the arch.

- Choose **Spare>Swap** from the Picture menu to display the spare page (or press `j`).
- Load the Seascape picture from the Picture drawer on your Examples disk. Choose **Palette>Default Palette** from the Colour menu.
- Jump back to your main page (press `j` or choose **Spare>Swap** from the Picture menu).
- Choose **Spare>Merge in back** from the Picture menu.

In a flash, your arch has a nice seascape backdrop.

This exercise gave you a quick example of perspective, but you can do a lot more. For an excellent example of perspective at work, load the picture New Star-Hall on your Examples disk.

Chapter 6

ANIMATION BASICS

This chapter introduces you to DeluxePaint V's animation features. It begins by explaining the basic model for animation and then covers each of the different ways to create animations with the program. We recommend that you work through this chapter in one sitting. It will take you approximately 45 minutes to complete.

Before You Begin

If you've been experimenting with DeluxePaint for a while before starting this chapter, it would be a good idea to quit the program and restart. If you start the program fresh, there is less chance that the results you get from following our instructions will be different from what we describe.

- When the Choose Screen Format requester appears, select Lo-Res, 320x200, and 32 colours, and click Use.

The Basic Model

The basic idea behind animation in DeluxePaint is that instead of having a single page to paint on, you have multiple pages that you can paint on and flip through. By creating images that differ slightly from page to page and then playing them back in rapid succession, you create the illusion of motion.

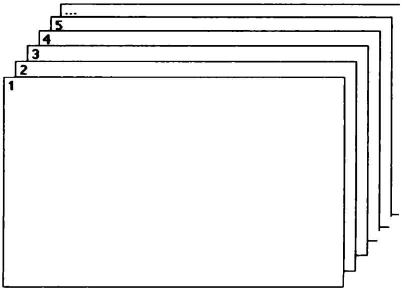


FIGURE 6.1 THE BASIC MODEL

This section shows you how to:

- ☐ Create frames for your animation
- ☐ Paint on individual frames in the animation
- ☐ Paint while the frames are flipping — this is called Animpainting™
- ☐ Use the Animation Control Panel.

Creating Frames

The first step in building an animation is to create the frames to paint on.

- Choose **Frames>Set #** from the Anim menu. The Set Frame Count requester appears.

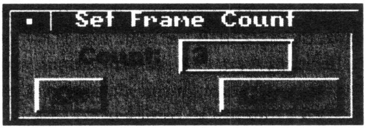


FIGURE 6.2 THE SET FRAME COUNT REQUESTER

- Click in the Count edit box, change the frame count to 10 and click OK.

You now have 10 frames to paint on. Notice the numbers 1/10 at the left side of the Title Bar. This means you are positioned on the first frame of a 10 frame animation.

Painting One Frame at a Time

The most basic way to create an animation is to paint on each successive frame individually.

- Select the largest round built-in brush and paint a dot in the upper left area of your screen.

The dot you just placed is on frame 1. The trick of animation in DeluxePaint is to paint a slightly different picture on successive frames. So you need to move to the next frame.

- Choose **Control>Next** from the Anim menu to move to frame 2. (Notice the Title Bar shows 2/10). Click another dot to the right of where your first dot was.

Now you have a dot on frame 1 and a dot on frame 2. To create a series of dots that move across the screen, you just repeat the last step. You'll notice that changing frames from the menu is a little cumbersome, and it forces you to move the mouse from the painting area. It's much more efficient to move through the animation frames by using the keyboard equivalents (listed in the menu beside the options). Follow the numbered steps below and we'll use keyboard equivalents to complete and play our little animation.

1. Position your brush just to the right of the dot you painted on frame 2.
2. Press 2 on the keyboard once to advance to the next frame, then click to paint a new dot.
3. Repeat step 2, painting each dot to the right of the previous one, until your first dot appears again in the left side of the screen. (The Title Bar will show 1/10 as your frame position.)

   You've just created a brief animation. Now let's play it.

4. Choose **Control>Play** from the Anim menu (or press 4 at the top of the keyboard). You should see your dot moving from left to right across the screen.

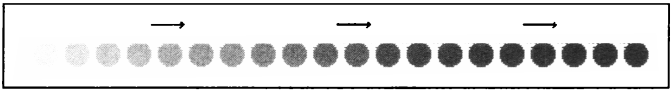


FIGURE 6.3 A SIMPLE DOT ANIMATION

5. To stop the animation, press the *space bar.*

Animation Control Panel

Selecting animation options from the Anim menu or using keyboard equivalents for those commands are only two of the ways DeluxePaint has for controlling your animations. Those two methods are handy, but perhaps the most efficient way to control your animation is through the Animation Control Panel.

- Select **Control>Panel** from the Anim menu.

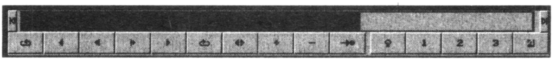


FIGURE 6.4 ANIM CONTROL PANEL

The Animation Control Panel appears at the bottom of the screen. It's useful to have it visible while you work on your animation sequence. If you want to remove it while you're animating, choose **Control>Panel** from the Anim menu again. (Notice that there are check marks next to items when they're on; no check mark when they're off.)

The Control Panel contains a Frame slider, scroll arrows, and fifteen control buttons for working through and playing with your animation.

Frame Slider

The Frame slider helps you keep track of where you are in your animation sequence, when you've hidden the Title Bar. Even when the Title Bar is showing you can move to a specific frame by dragging the slider or by clicking on it. One click to the left or right of the slider handle moves the animation one frame. Clicking on the scroll arrows will take you to the first (left-arrow) or last (right-arrow) frame.

Anim Control Buttons

Play Backward Continuously	Play your animation sequence in a continuous loop, from last frame to first frame. Press the *space bar* or click to stop play.
Play Backward Once	Click to play through your animation sequence one time, from the last frame to frame 1. Animation ends on the first frame.
Previous Frame	Click to move backward one frame. Steps from the current frame to the previous frame in the animation sequence. If the current frame is the first frame in the sequence, the position is set to the last frame.
Next Frame	Click to move forward one frame. Steps the current frame to the next frame in the animation sequence. If the current frame is the last frame in the sequence, the position is set to the first frame.

Play Forward Once	Click to play through your animation sequence one time, from Frame 1 to the last frame. Animation ends on the last frame.
Play Forward Continuously	Play your animation sequence in a continuous loop, from first frame to last frame. Press the *space bar* or click to stop play.
Play Ping-Pong	Plays your animation sequence continuously as above, but plays the sequence forward then backward then forward and so on. Press the *space bar* or click to stop play.
Add a Frame	Adds a frame after the current frame, and copies the contents of the current frame to it. Press Ctrl while choosing this icon to bring up the Add Frames requester.
Delete a Frame	Deletes the current frame and makes the following frame the current frame (unless you're already at the last frame). Press Ctrl while choosing this icon to bring up the Delete Frames requester. You can't UNDO a delete command, so DeluxePaint asks you to confirm that you really want to delete a frame.
Repeat Last Go To	Takes you to the frame last defined in the Go To Frame requester (default = frame 1) of your animation. Press Ctrl while choosing this icon to bring up the Go To Frame requester.

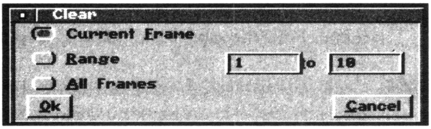
❖ The LightTable and the four associated icons on the right side of the Control Panel will be described later in this chapter.

Painting with Animation

You saw above that one way to create an animation in DeluxePaint is to paint on a series of frames individually. For creating animations that involve simple movement of an object, DeluxePaint provides a much easier method called animpainting. Essentially, the frames flip automatically while you paint.

- Right-click CLR in the Toolbox. The Clear requester appears.

HINT Left-clicking on CLR when there are animframes clears only the current frame.



Clear

● Current Frame

○ Range 1 to 18

○ All Frames

FIGURE 6.5 CLEAR REQUESTER

When you click CLR with multiple frames, DeluxePaint gives you the option of clearing only the current frame, a range of frames in your animation, or all frames.

- Click All Frames in the requester. Click OK.

In a moment all of your frames are cleared and you are automatically set back at frame 1. Now let's do some animpainting.

- Select the large round brush, and the Dotted Freehand tool.
- Hold down the Alt key, and paint by holding down the left mouse button and dragging across the screen from left to right.

As you paint, the frames flip automatically, so you place only one dot on each frame of your animation. Notice that the frame counter in the Title Bar changes to show what frame you are on. When you reach the last frame, you loop back to frame 1, where you'll see your first dot again.

The **Alt** key is your animpainting key. If you hold down the Alt key at the time you press the mouse button down, the animation frames will flip with each stamp of the brush so that you stamp only once on each frame. Remember that you only need to hold down the Alt key as you press the mouse button down. Then you can release Alt to press other keys if you need to.

- After you have painted for a few seconds, stop and choose **Control>Play** from the Anim menu or press 4 on the keyboard.

  You can also use the Animation Control Panel to activate any of the commands that are called for in this chapter.
- Press the *space bar* or click to stop the animation.

Now you know these basic elements of animation:
☐ How to create frames.
☐ How to move through the frames one by one and paint.
☐ How to animpaint.

Animpainting is especially powerful if you have an animated brush to paint with; we'll show you how to create and use one later in this chapter. Right now we want to show you more ways to move objects on the screen.

Automatic Animation Using the Move Requester

The Move requester lets you automatically move and rotate a brush over a number of animation frames. More importantly, you can move and rotate the brush in all three dimensions. In essence, you are painting using Perspective, but DeluxePaint makes all of the calculations for the individual frames.

This section will take you through a detailed explanation of each feature of the Move requester and give examples for most of the features.

- To begin, right-click CLR and clear All Frames from the previous animation sequence.
- Choose **Frames>Set #** from the Anim menu. Change the frame count to 20, and click OK.
- Press Shift-1 to move to frame 1.
- Load the brush DPaintTitle from the Brush drawer.

- Choose **Palette>Use Brush Palette** from the Colour menu.

❖ These instructions assume that your memory method (**Method** in the Anim menu) is set to Compressed—the default setting. Amigas with two megabytes of RAM can create only 9 to 10 frames using the Expanded method. You'll find a brief description of the two memory methods in ***Reference.***

Simple Moves in Three Dimensions

The Move requester does exactly what its name implies—it moves your brush on the screen. There are many impressive animations you can create with only the Move requester and a brush like our DPaintTitle brush, but to create those impressive animations, you need to know how each feature of the Move requester works. This brief section explains the most basic Moves.

- Stamp your brush in the centre of the screen.
- Choose **Move** from the Anim menu. The Move requester appears.

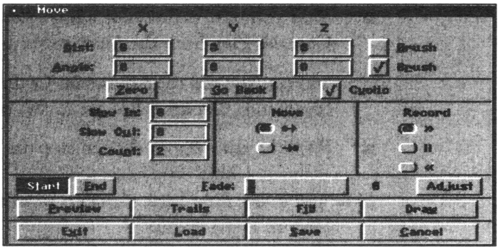

Move
X
Y
Z
Dist: 0 0 0
Angle: 0 0 0
☐ Brush
☑ Brush
Zero
Go Back
☑ Cyclic
Slow In: 0
Slow Out: 0
Count: 2
Move
Record
Start
End
Fade:
0
Adjust
Preview
Trails
Fill
Draw
Exit
Load
Save
Cancel

FIGURE 6.6 THE MOVE REQUESTER

The first row in the Move requester lists the three axes (X, Y, and Z) in the three dimensional space of your screen. If you are familiar with Perspective you know that these axes run left and right, up and down, and in and out from the screen respectively. Figure 6.7 shows the orientation of the three axes to the screen.

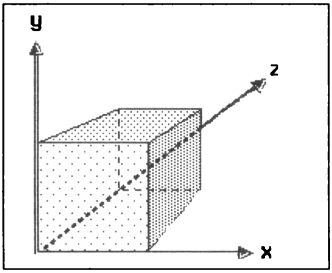


FIGURE 6.7 THE THREE AXES

Directly below the X, Y, Z letters there are edit boxes for entering Distance (Dist:) numbers. You enter numbers here to tell DeluxePaint how far to move your brush in any direction or combination of directions. (If your brush is moving only on the X and Y axes, the numbers are equal to pixels, but once you move along the Z axis, the units are either smaller or larger than pixels.) Let's look at a simple example:

- Click in the Dist edit box below X and set the number to 200.
- Make sure that the Count edit box (in the middle of the requester) shows 20 as the current setting. If the number is not 20, click in the edit box and change the number.
- Click Preview to see a preview of the movement of your brush.

You will see your brush enclosed in a wire frame move to the right across the screen. If you want your brush to move to the left, you enter a negative number for the X Distance. Try it.

- Set the X Dist edit box to -200. Click Preview.

This time your brush moves to the left across the screen. A similar rule applies to the other two axes: Y Distance moves your brush upward if the number is positive and downward if the number is negative. Z Distance moves your brush out to the distance (away from you) if the number is positive or inward to the screen (coming toward you) if the number is negative.

You can use any combination of the three Dist edit boxes to move your brush anywhere in three dimensional space. Try it if you like. Set a number for each of the three boxes and click Preview to see where the brush would move.

Simple Rotation

In addition to moving the brush along an axis or several axes in combination, the Move requester lets you rotate the brush around one or more axes. You rotate the brush by entering numbers in the Angle edit boxes.

- In the Move requester, click Zero, which clears all data from the Distance and Angle edit boxes.
- Click in the Z Angle edit box and enter 360 as the angle of rotation. (This tells DeluxePaint that you want to rotate the brush 360° on the Z axis.) Click Preview.

You'll see a wire frame representation of your brush rotate clockwise on the screen. Just as negative numbers change the direction of movement when using Distance moves, negative numbers change the direction of rotation when you use Angle moves.

- Change the Z Angle setting to -360° and click Preview.

The wire frame rotates counter-clockwise.

If you're familiar with DeluxePaint, you'll notice several new buttons here in the Move Requester that will make it easier for you to position and move your brushes around. Using the knowledge you learned about perspective in Chapter 5, you'll feel right at home with the way the key frame "Adjust" button works.

Again using the DpaintTitle brush, let's try it out.

- Click the Zero button to reset the distance and angle settings.
- Select the Start key frame button and choose the Adjust key frame button.
- You will see a wireframe representation of the DpaintTitle brush as if you were in perspective.
- While in this Adjust mode you can move your brush around and set the starting position you would like your brush in.
- Click and drag the brush to the top of your screen. Press Return or Enter (Either key will accept your position and exit you out of Adjust mode.)
- Press the End key frame button and choose the Adjust button one more time.
- Click and drag the brush to the bottom of your screen. Press Return or Enter.
- Select the Preview button to see the move you just created. Notice that DeluxePaint enters the distance for you automatically. You can edit the values manually as you learned in the previous section as well.
- The Fade slider will fade in or fade out your move using a translucency value between 0 and 255. 0 is full opaqueness, and 255 is full translucency.

  The effect DeluxePaint will achieve for you is dependent on your palette and screen mode. The more colours to transition to full translucency the better the fade effect will be. You can have a fade value for both the Start key frame and the End key frame.
- As explained earlier, "Adjust" mode is very similar to perspective, not only can you move your brush in the screen's X and Y axes, you can also rotate your brush using the perspective rotation keys (1, 2, 4, 5, and 7, 8 on the keypad) and reset your axes using (3, 6, 9, and 0). In addition, you can move your brush in the Z distance by holding down the Ctrl key and clicking and dragging until you set the brush size to your liking.
- We hope the addition of setting Start and End key frames and the addition of a fade effect over a move will make it easier for you to create the animations in your head. Click Zero and try some brush rotation and moving your brush in the Z distance while in the adjust mode and press Preview to check it out before you move on to the next section. Have fun!

Brush Check Boxes

At this point you may be wondering about those two options labelled Brush beside the Distance and Angle edit boxes. The short answer is that these options determine whether your brush moves and rotates based on the screen axes or based on the brush axes. The default setting is for the brush to move along the screen axes and to rotate around the brush axes. To fully understand this feature, you'll need to be familiar with how Perspective, described in Chapter Five, works. We'll explain the Brush check boxes in more detail later in this chapter. For now, just leave them as they are.

The Go Back Command

The Go Back button has a similar function to the Clear button, only it affects the location of the brush rather than the settings in the Move requester. When you use the Move requester to move your brush in three dimensional space, DeluxePaint remembers the *ending* position of the brush when the move is complete. If you want to do a second move from the original brush position, click Go Back to reset the brush location.

We'll show you the results of two different move paths, one without using Go Back and one using Go Back. In this example you'll also actually draw and play the animation instead of simply previewing it.

Successive Moves without Go Back

- Click Cancel in the Move requester. Click CLR and clear all frames (if you've been following the steps, the frame count should still be 20).
- Choose **Perspective>Reset** from the Effect menu to reset your brush to the original orientation.
- Position the brush at the bottom of the screen, and paint it down.
- Choose **Move** from the Anim menu to display the Move requester.
- Click Zero to clear the edit boxes and then set the Y Distance to 200 and the Z Distance to 400.
- The frame count should be set to the number of frames you currently have. If it's not, make it so.
- Click Draw.

You just created the first part of the brush's movement, now we'll create the second part to continue from where the brush ended.

- Instead of choosing **Move** again, this time press Shift-m to display the Move requester. M is the keyboard equivalent of choosing **Move** from the Anim menu.
- Set the X Distance to 800, leave the Y distance at 200, and set the Z distance to 0. Click Draw.
- Choose **Control>Play** from the Anim menu (or press 4) and watch your animation. Press *space bar* when you've seen it enough.

In the animation you created, your brush moves into the distance and upward and then shoots off the screen diagonally to the right. Because you didn't use the Go Back button, the second part of the brush's movement follows directly from the end of the first part.

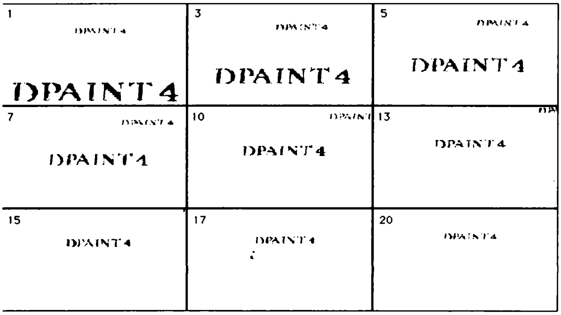


FIGURE 6. 8 RESULTS OF TWO SUCCESSIVE MOVES WITHOUT GO BACK

Successive Moves with Go Back

In the next set of steps, you'll use the same settings as the first example, but you'll also click the Go Back button before drawing the second part of the brush movement.

- Click CLR and clear all frames. This time press Shift-Keypad 0 to reset your brush to the original orientation. Position the brush at the bottom of the screen, and paint it down.
- Press M to display the Move requester. Set the X Distance to 0, the Y Distance to 200, and the Z Distance to 400. Click Draw.
- Press M again. Set the X Distance to 800, leave the Y distance at 200, and set the Z distance to 0. Click the Go Back button. Click Draw.
- When DeluxePaint is finished drawing the animation, choose **Control>Play** from the Anim menu and watch your animation.

This time you see your animation shows a title splitting into two, with one title moving into the distance and upward and the other moving diagonally off the screen to the right.

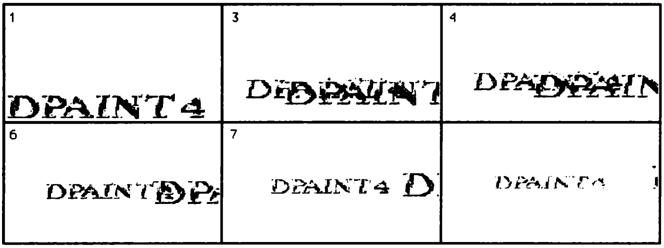


FIGURE 6. 9 RESULTS OF TWO SUCCESSIVE MOVES WITH GO BACK

Cyclic and Non-Cyclic Moves

You use the Cyclic button to tell DeluxePaint which of two kinds of animation you want:

- An animation that will loop back on itself (cycle) or chain from the current move to another move of a similar type; or
- An animation that is linear and will end at the last frame you requested in the Move requester.

DeluxePaint draws your move differently depending on whether or not the Cyclic button is selected. In this section we'll give you a very quick example of the difference between the two moves.

Cyclic Animation

- Load any brush that contains features to help you tell whether or not the brush has been rotated. (The DPaintTitle brush will do very well.)
- Right-click CLR and clear all frames. Choose **Perspective>Reset** (or press Shift-Keypad 0) to reset your brush to the original orientation. Stamp the brush in the upper half of the screen.
- Display the Move requester. Click Zero in the requester. Set the Z Angle to 360.
- Click the Cyclic button so a √ appears in the box. Click Draw.

When DeluxePaint is finished drawing your animation, notice that you are on frame 1 of your animation. DeluxePaint moved you to the frame past the ending frame of your Count.

- Press Shift-2 to go to the last frame of the animation. (20/20 appears in Title Bar).

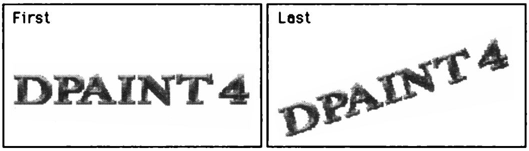


FIGURE 6.10 FIRST AND LAST FRAMES OF A CYCLIC 360° ROTATION

Notice that on the last frame of your animation, the brush is not rotated 360°, even though you asked for a 360 rotation in the Move requester. This is because Cyclic tells DeluxePaint to create a "cyclical" animation — one that completes the move on the same frame where it began. With this animation, you can play continuously without a seam.

- Press 4 and watch the animation for a moment. Press the *space bar* to stop the animation.

Non-Cyclic Animation

If DeluxePaint had painted the brush fully rotated on the last frame, you would have the same image on frames 1 and 20, and the animation would hiccup when you played it continuously. Let's draw the same thing with Cyclic turned off to see how that works.

- Press Shift-1 to move to frame 1 of your animation. Paint your brush in the lower half of the screen.
- Display the Move requester. Click Cyclic to turn it off (remove the √), and click Draw.

Even as the new move is being drawn you can see that the new rotation is in larger steps than the first one. When the draw is complete, you will be left at frame 20, where you can see that the new move completed the 360° rotation on frame 20, *unlike the Cyclic move which left you on frame 1.*

- Press 4 and watch the animation. Press the *space bar* to stop the animation.

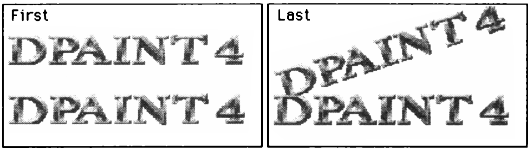


FIGURE 6.11 FIRST AND LAST FRAMES OF A CYCLIC (ABOVE) AND NON-CYCLIC 360° ROTATIONS

You should be able to see that the rotation at the top of the screen is smooth, but the rotation at the bottom of the screen hiccups noticeably.

You might ask yourself at this point why anyone would want Cyclic turned off. The answer is simple: you might want to rotate exactly 90° by a particular frame or you might want to move an object from point A to exactly point B. Generally, if you are creating an animation sequence that runs for less than the full number of frames you have allocated for your animation, you don't want Cyclic turned on. For a clear example of why you would want Cyclic turned off, follow the next set of steps.

- Clear all frames of your animation. Press Shift-2 to move to the last frame.
- Select the Unfilled Circle tool and the single-pixel brush and draw a small circle on the right side of the screen.
- Choose **Coordinates** from the Prefs menu to turn on Coordinates. The coordinates are displayed on the menu bar.
- Select the Dotted Freehand tool and the largest round built-in brush. Position the brush in the middle of your unfilled circle and note what the Coordinates show as the location of the brush.
- Move the brush 200 pixels to the left of that position, press Shift-1 to move to frame 1 and stamp down your brush.

TIP When you need to move your brush in a straight line horizontally or vertically as you did in the step above, hold down the Shift key. This constrains your cursor to horizontal or vertical movement, depending on which direction you move in first.

- Display the Move requester, click Zero, set the X Distance to 200, make sure Cyclic is selected, and click Draw.

When DeluxePaint finishes drawing the animation, notice that you are left on frame 1. Now look at frame 20 (press Shift-2). You'll see that even though the distance from where you stamped your brush to the centre of the circle was exactly 200 pixels and the move you requested was 200, the dot did not reach the centre of the circle. If you want to move your brush to a specific location by your ending frame, turn Cyclic off.

Figure 6.12 shows the results of the steps above with Cyclic selected and not selected.

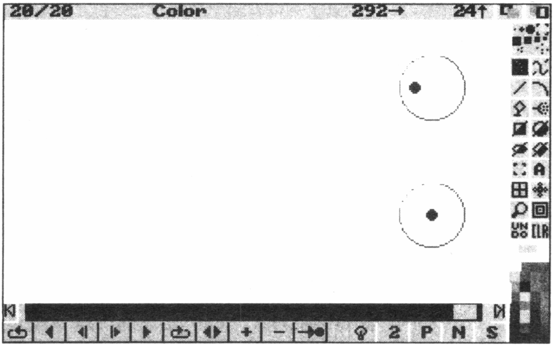


FIGURE 6.12 EXAMPLE OF LINEAR MOVE WITH AND WITHOUT CYCLIC SELECTED

Although you can't see it, DeluxePaint has positioned the brush in the centre of the circle on frame 1. If you want to prove this, go to frame 20 and display the Move requester. Click 0, change the Count to 1, and click Draw.

When you complete a move with Cyclic selected, DeluxePaint automatically advances you to the frame beyond the end of your Count and the brush position DeluxePaint remembers is the position you specified in the Move requester.

Smooth Moves Slowly

The Slow Out and Slow In edit boxes let you specify a number of frames over which the brush can accelerate or decelerate in your animation. The primary advantage of these features is that you can make the brush movement smooth at its beginning and ending points. Also, some effects require a gradual acceleration and deceleration to be realistic. For example, a bouncing ball should accelerate on the way down. The bouncing ball is a good example of how this feature works, so let's try it.

- Clear all of your frames. Load the Ball.brush brush from your Brush directory, and then choose **Palette>Use Brush** Palette from the Colour menu.
- Press h to halve the size of the ball.
- Display the Move requester. Click Zero to zero the location values, and then click Start.
- Click Adjust. The screen changes to a blank background with ball brush. Click and drag within the boundaries of the box that surrounds the brush and position the brush near the top of the screen. Press Enter or Return to accept the positioning and return to the Move requester.
- Click End, and then click Adjust again. This time, position the brush near the bottom of the screen. Press Enter or Return.
- Change the Slow Out Edit box to 10. Make sure the Count is set to 20, and then click Draw. The animation of the ball moving from the top to the bottom of the screen is created.
- After the animation is drawn, choose **Control>Ping-pong** from the Anim menu (or press 6) to play the animation forward and backward. You should see a bouncing ball. Press Tab for added effect.

Let's take a moment to review what you just did. You positioned the Start and End frames to make the ball move from the top of the screen to the bottom of the screen. When you entered 10 in the Slow Out edit box, you told DeluxePaint that the brush should gradually increase its speed over the first 10 frames and then move at the same speed for the last ten. You could have achieved the same effect by typing values into the X and Y edit boxes for the Start and End positions, but the method we used is simpler and more intuitive.

More on the Move Requester

What remains in the Move requester is fairly straightforward. For now, we'll summarise what each of the buttons does. You'll find additional explanations and more examples of the features below, in the following chapter, and in *Reference*.

Direction

The Direction options control the direction of the move and the direction of the recording.

●⟶ The Go From button is the default setting for movement. With this option selected, the settings in the Move requester are used to paint motion away from the point where you last stamped your brush. For example, an X Distance of 200 moves to the right *from* where you stamped your brush, over the number of frames set in the Set Number of Frames requester.

⟶● With the Come To option selected, the settings in the Move requester are used to paint motion toward the point where you stamped your brush. For example, an X Distance of 200 moves to the right *to* where you stamped your brush. This option is most useful when it's easier to specify the position where you want the move to end than it is to specify the beginning. Remember that you want to stamp the brush on the frame you want your animated move to end on. Here's a practical example.

Assembling the Pieces

Suppose you want pieces of a picture to fly onto the screen and assemble neatly on the last frame. If the pieces are coming from off screen, it's difficult to position the brush there for the beginning of the move! And you don't want to calculate backwards from the ending position to figure out just where the starting position should be anyway. The answer is to go to the last frame, paint down your brush, and tell DeluxePaint to paint the brush moving toward this point. That's what the Come To option is all about. Let's do it.

- Clear all frames.
- Choose **Frames>Set #** from the Anim menu and set the number of frames to 20.
- Press Shift-2 to go to the last frame of the animation.

Remember, when you use the Come To option, you always paint the brush down on the frame where you want the move to end.

- Choose **Load** from the Brush menu. Load the file named pie1.brush from the Media disk. Choose **Palette>Use Brush Palette** from the Colour menu.
- Paint the brush down in approximately the middle of the screen.
- Display the Move requester, and click Zero.
- Set the X distance to -200. Set the Y distance to -150. Set the Z angle to 180. Click the Come To option.
- Set Slow In to 5, and click Draw. Reset Slow Out to 0.
- Play the anim that you have so far.

You'll see the piece of pie chart fly in from off the screen. Notice how the Slow In setting of 5 frames smoothed the landing of the pie. If you continue with the other two pieces to construct the full pie chart, you'll see that this Slow In element is very important to the look of the animation.

NOTE You can also accomplish these types of assembly moves with the Start and End buttons as well, without having to use Come To.

If you get the point of this exercise and don't want to complete the flying pie chart, you can continue on. Otherwise, (or if you want to continue for fun) there are two more pieces of pie chart to load. Load each one and stamp it in place (with the black edges of the slices overlapping) and set any move you want that will send the slice flying onto the screen.

This is a great opportunity to experiment with the Move requester settings; no matter what numbers you enter, the pie will come to the proper end point on frame 20.

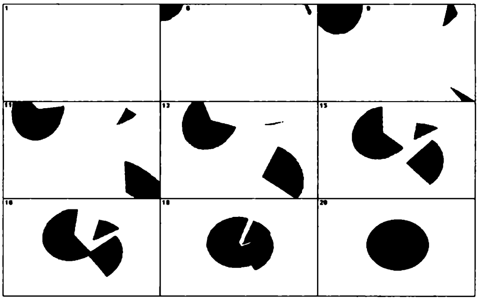


FIGURE 6.13 FLYING PIE CHART USING COME TO AND SLOW IN

Record [»] [II] [«] The Record options let you specify the direction in which DeluxePaint paints the frames of your move.

[»] Forward is the default and paints the frames by flipping forward.

[II] In Place causes DeluxePaint to paint all of the move on the current frame.

[«] Backward paints the frames by flipping backward — this option is useful with Trails.

Trails and Fill are best explained by vivid example — you'll find two examples of each in the next chapter.

Load Displays the Load Move requester. From here you can load Move settings that you entered and saved with the Save Move requester. When you load a move, you are loading only the settings for the Move requester. You still need to stamp your brush in the correct position and on the correct frame to duplicate the move you had in mind. If you aren't absolutely sure of the setting you want to load, try using the feature this way: stamp your brush in the centre of the screen; load the move settings you think you want; click Preview to see the move as it would look if it started from the middle of the screen. This will give you a good idea of what the move looks like when it is actually drawn, and it will also help you determine where your brush should be stamped to produce the best move for these settings. The requester works just like the Load Picture requester.

Save

Displays the Save Move requester. DeluxePaint lets you save the settings (though not the images) of any move you set up in the Move requester. You can load a saved settings and use them as a kind of template to automatically describe the movement of another object. The requester works just like the Save Picture requester.

Animated Brushes

So far we've shown you how to create an animation by painting on a series of frames. DeluxePaint also lets you select an area of animation as a brush and paint with it. The result is that the brush changes while you paint, and, depending on whether or not the frame changes, you create either animation or interesting effects.

In ***Guided Tour (2),*** we showed you how to load and use one of the AnimBrushes included on the Examples disk. In this section, we'll show you how to create a simple AnimBrush of your own and paint with it.

Creating an AnimBrush

To begin, let's create a simple animation that we can easily pick up as a brush.

- Choose **Palette>Default Palette** from the Colour menu.
- Clear all of your animation frames. Paint a circle about the size of a quarter and filled with a gradient. Pick your sphere up as a brush using the right mouse button to pick it up off the screen.
- Paint your brush down and rotate it 360° over twenty frames. To do this:
- Display the Move requester. Click Zero to set all of the options to their defaults. Set the Z Angle to 360 and select Brush angle. Select Cyclic and make sure the Count is 20.
- Make sure Slow In and Slow Out are set to 0.
- Click Draw.

Your brush will rotate in place to create an animation that looks a little like a spinning planet.

Picking Up an AnimBrush

- When DeluxePaint is finished painting the animation, step to frame 1 and choose **AnimBrush>Pick Up** from the Anim menu.

A large cross-hair like the one you use to pick up standard brushes appears, but it is special in that it picks up from a series of frames.

- Pick up the sphere animation as a brush as you normally would using the left mouse button.

- In the Pick up AnimBrush requester that appears, 20 should appear in the Number of Cels edit box. If it does, click OK.

After you click OK, you will see each of the frames flip as the area is picked up. When it's done, you have your AnimBrush. Another way to pick up an AnimBrush is to select the Brush Selector and hold down the Alt key as you pick up an area of your animation.

Painting with the AnimBrush

- To prove that you have an animated brush, paint with it a little.

You'll see that the brush spins as you paint. This is one way to use an animated brush. But better yet, try animpainting:

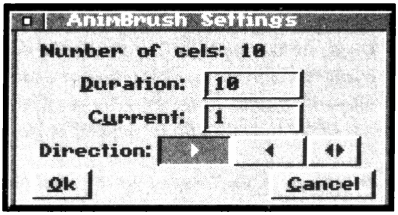
- Clear all frames. Hold down the Alt key. Position the brush in the lower left corner of the screen and paint from left to right across the screen.

The frames flip as you paint, so you only place one cel of the AnimBrush on each frame of your animation. When you play the animation back, you'll see a ball roll from left to right across the screen.

AnimBrush Settings

When you begin to combine AnimBrushes into large animations, you'll find that occasionally you want to change the rate at which an AnimBrush transforms. You might even want to change the direction in which an AnimBrush plays. For example, you might want the gradient ball you created above to turn in the opposite direction. You can do this with the AnimBrush Settings requester.

- Choose **AnimBrush>Settings** from the Anim menu.



AnimBrush Settings

Number of cels: 10

Duration: 10

Current: 1

FIGURE 6.14 ANIMBRUSH SETTINGS

Direction

- Click the (backward) direction button and click OK.

Now your gradient circle will rotate in the opposite direction when you paint with it.

The other direction setting is called Ping Pong. This setting causes the brush to alternate between forward and backward play.

Duration

The Duration box in the AnimBrush Settings requester let's you specify how many stamps of the brush the AnimBrush uses to complete its cycle. If the

Duration number is larger than the number of cels, the brush seems to move more slowly. If the Duration number is smaller than the number of cels, the brush seems to move more quickly. Let's try painting normally with a brush and then paint with the Duration set higher.

- Choose **AnimBrush>Load** from the Anim menu. Load the file named Sweep from the AnimBrush directory of your Examples disk. Choose **Palette>Use Brush Palette** from the Colour menu.

- Display the AnimBrush Settings requester and set the Direction to play forward. (Notice that this animated brush has 10 cels.) Click OK.

- Position the karate figure on the left side of the screen. Hold down the Alt key and click the mouse button repeatedly without moving the mouse to paint one cel of the animbrush on each of the 20 frames of your animation.

You now have an animation of a karate character performing a sweep kick twice. You'll notice that the sweep kick is fairly rapid. Next we'll paint the same animbrush with a longer duration to slow down the motion of the character.

- Choose **AnimBrush>Settings** from the Anim menu. Set the Duration box to 20. Set the Current box to 1 to put the brush at its first cel. Click OK.

Now position the karate figure on the right side of the screen. Hold down the Alt key and paint one cel of the AnimBrush on each of the 20 frames.

When you've finished painting your AnimBrush on the 20 frames, press the 4 key at the top of the keyboard to play the animation.

Compare the speed of the two characters. If you step through the frames of your animation one at a time, you'll see that the man on the right takes two frames before changing position, while the man on the left moves on every frame. You can also use Duration to speed up an animbrush by setting the duration number lower than the number of cels in the brush. In that case, cels of the brush would be skipped as you painted with the brush.

❖ **Note:** If you increase the duration of an AnimBrush, it is best to set a duration that is a multiple of the number of cels in your brush. For example, an animbrush that has 10 frames will generally look best if you set the duration to 10, 20, 30, etc.

Metamorphous AnimBrushes

Another way to create AnimBrushes is to transform the image and shape of one custom brush into those of a second custom brush. This special feature, called metamorphosis, can create some stunning effects. We'll show you a couple of very simple examples just to give you the idea. The first example metamorphoses between very different brushes. The second example metamorphoses between two transformed versions of the same brush. In both examples, you'll use the **Spare** options in the Brush menu to work with two custom brushes at the same time.

The Chicken and the Egg

In this example, you'll load two different custom brushes (a chicken and an egg) and create an AnimBrush that metamorphoses between the two.

- Clear all frames of your animation.
- If the Animation Control Panel is NOT on your screen, press Alt-A to display it.
- Choose **Load** from the Brush menu, and load the file named egg.brush from the Brush drawer of the Media disk. Choose **Palette>Use Brush Palette** from the Colour menu.
- Choose **Spare>Brush→Spare** from the Brush menu.

The Brush→Spare option copies your custom brush to the spare custom brush buffer. Now that you have the first brush in the spare buffer, you can load a second brush without losing the first one.

- Choose **Load** from the Brush menu, and load the file named "chicken" from the Brush drawer on Media.

Now you have two custom brushes what you can swap back and forth between by choosing **Spare>Brush↔Spare** from the Brush menu. Try it if you like. Make sure that the chicken is your current brush before you proceed.

- Now choose **Spare>Morph→Spare** from the Brush menu. (The Make AnimBrush requester appears.)
- Enter 11 in the edit box as the number of cels in your new brush, and click OK.

It will take a little while for DeluxePaint to morph your two custom brushes into one AnimBrush.

- Go to AnimBrush settings on the Ping Pong direction button and click OK.

The Ping Pong option automatically plays your AnimBrush to the end and back again repeatedly without doubling the first or last cel of the brush. This means that the brush is effectively twice as long minus 2 cels. (In this case, we had you create an 11 cel brush so that the Ping Pong version would play over exactly 20 frames.) You'll find the Ping Pong option very useful for converting linear brushes into cyclical ones without having to create the extra frames.

- Hold down the Alt key, and click the brush repeatedly to paint the brush over 20 frames. Press 4 to play the anim.

You'll see an egg metamorphose into a chicken and back into an egg over and over until you press the *space bar* to stop the animation.

The LightTable

The LightTable lets you view a few frames of animation overlaid on each other like clear sheets of cellophane to help you position brushes or paint the in-between frames of a character animation. The LightTable also allows you to set multiple levels of dim so that you can view any frames in your animation behind (or after) your current frame. This enables you to more easily see the frame you are working on. (This dimming effect is available in all modes except HAM.)

Traditional animators work by painting the key positions or poses of a character and then paint the "in-between" frames to create the smooth transition between poses. The LightTable is ideal for creating animation with this traditional approach. In the next few pages, we'll introduce the basics of using the LightTable.

A new LightTable feature is the LightTable Settings requester (**Effect>LightTable>Settings...**). You can use this requester to control all four LightTable layers — you can turn each layer on or off, set the animation frame associated with the layer, and set 'dim' levels for each layer. The Dim level for each layer can be set with a slider from -255 (Maximum brightness; even lighter than the original frame) to 255 (completely dimmed out).

Simple 'Tweening

We'll start out with a simple example of painting some in-between frames of an animation.

- Choose **Load** from the Anim pull down menu and load the animation LightTable.anim

When you load this animation you will notice that this is a 5 frame animation showing a face moving left to right. You will also notice that the smile and the eyes are missing from frame 2 and frame 4. Normally, adding these features to the face may not be as easy as it seems, especially if the face is moving. This tutorial will show you how to add the smile and the eyes to the face to the in-between frames fairly easily, using the LightTable.

- Choose **LightTable>Settings...** from the Effect menu. The LightTable Settings requester appears.
- Click on the first two boxes on the far left of the requester. This will activate layer #1 and layer #2. You will notice a check mark appear next to box #1 and #2.
- Now we need to tell it which frame you want it to affect and how much dim you want to add to this layer. On Layer #1 change the frame box to 1 and move the slider on the right until it is at -200.

This means that layer 1 shows 1 frame ahead of the frame you are currently on and it will appear somewhat transparent because of the dim setting that you adjusted. Moving the slider to the left adds more white to the image and moving it to the right will add more black.

NOTE The LightTable settings will have optimum performance if your background is either black or white. Once you are finished using the LightTable you can colour in your image and change the background to whatever colour you desire.

- On Layer #2 change the frame box to -1 and move the slider on the right until it is at -175.

This means layer 2 will show 1 frame behind the frame you are currently on.

- Click OK to leave this requester.
- Press the 3 key on your keyboard (not the numeric keypad), to bring up the GO TO FRAME requester. Enter 2 in this requester and click OK.
- Hold down the Alt key on your keyboard and press A at the same time. This will bring up the anim control panel. You will notice that button #1 and button #2 to the right of the light bulb button is activated. This is because we selected these two layers in the light table settings requester.
- Press the light bulb button on this panel. Notice that their is a dimmed version of frame 1 and frame 3 superimposed on the current frame. This gives the illusion of drawing on very thin paper.
- Now that the LightTable is activated draw the eyes and the mouth on the face on frame 2. You may need to toggle the LightTable on and off with the L key on your keyboard.
- Go to frame 4 and draw the in-between frame here as well.
- Press play on the Anim control panel, turn on some music, and watch the face move his head to the beat.
- If you like your animation, save it before moving on to the next section.

For more information, check out ***Chapter 8: Reference.***

Evolution of an Animation

In this section we'll look at how a traditional animation evolves in DeluxePaint V.

The Background

- Turn off the LightTable.
- Delete all of your animation frames.
- Choose **Load** from the Picture menu and load the picture DoggieBackground.LoRes from the Picture drawer on your Examples disk. When the message appears asking whether or not you want to change format to that of the file, click Yes.

The picture you see is a simple background image of a lawn and tree. This image is the background for the DoggieOutline animation. Before animators begin to draw an animation, they create a background image against which the animated characters will move. The background image can be as complex as a city scene or as simple as a straight line to indicate the ground level for the characters to walk on. Whatever its level of complexity, the background helps keep all of the pieces working in harmony.

In the next brief section, we'll load a wire-frame animation over the background image.

The Outline

Now we'll take a look at the first step of creating an animation over a background.

- Choose **Spare>Swap** from the picture menu to put the background picture on the spare page.
- Load the anim DoggieOutline from the Anim drawer on your Examples disk. When the message appears to ask if you want to change the number of colours to that of the file, click No.

❖ **Note:** You just performed an important operation; you loaded an 8-colour wire-frame animation into 16-colour mode. DeluxePaint lets you load animations into screen formats that use more colours and thus makes it possible for you to create the initial animation outline in just a few colours and load it into a format with more colours later on when you want to paint the frames.

DoggieOutline is a few frames of a simple wireframe animation that was created by an animator who uses the traditional method of first drawing the outline version of the animation and then filling it with solid colours or patterns to create a finished piece. Traditional animators call the outline version of an animation the "pencil test."

- Turn on the LightTable to view the animation frames overlaid on one another.
- Click the 4 button in the Anim Control Panel to view the Spare page behind the animation.

See how useful it is to view the background image through your animation frames? With the background visible, the animator can easily align the animated characters without having to worry about accidentally ruining the background image. Even if you aren't working on an animation, you might find it useful to view a background image while you paint. If you turn off the Dim option (from the LightTable submenu of the Effects menu) you can view the background in its original colours and thus treat your animation frame as a transparent page.

- Choose different combinations of settings (1, 2, 3, and 4) in the LightTable area of the Anim Control Panel. Move the Frame Slider back and forth to view the different animation frames and background combined with the various settings.

Merging in the Background

One of the powerful features of the LightTable is its ability to let you merge your viewed frames. We'll try it right now by merging the background image into the image on one of the frames.

- Make sure LightTable is on, but turn off all of the LightTable options other than 4 (for Spare).

You should see your current frame against the background on the Spare page with no other frames visible.

- Choose **LightTable>Merge** from the Effects menu.

In a moment, your background is merged with your wireframe animation. Notice that the LightTable is automatically turned off after a merge operation. This is done so you will see the frame in its actual state and not be confused by LightTable effects. One caution is in order: you can't Undo a merge, so you should be very careful that the image as you see it in the LightTable is correct before you merge it.

Another way to merge the background image with the frames is to use the **Spare>Merge in Back** option in the Picture menu. This option lets you merge to the current frame, to a range of frames, or to all frames in a single operation. This is generally the last step an animator takes in the creation of a finished traditional piece.

The Painted Animation

Before we leave this section, we'd like you to load in a painted animation that was created using the techniques described in this chapter.

TIP If you are going to be *saving* your animations to video tape and you don't have a lot of RAM in your Amiga, it might be best *not* to merge a background into your animation. Instead, you can create a painted background and use a GenLock device to combine the video signal of the Amiga with the signal of a camera focused on the painted background as you record the two to a videotape.

- Load the walk.anim from the Gallery drawer of the Extras disk.

This High Res 16 colour animation was created by an animator at Electronic Arts using DeluxePaint and traditional animation techniques.

Brush Axes vs. Screen Axes

Now that we've covered pretty much everything else, it's time to cover the sticky issue of brush vs. screen axes. We've tried to make the example very clear, but if you feel you need further help, review ***Chapter Five: Working with Perspective.*** We should also mention that you will not need to change the default settings for these options very often.

Movement Along the Brush Axes

So far in our examples, we've been moving the brush along the screen axes. When your brush is in a standard orientation (0, 0, 0), movement on the brush axes is the same as movement on the screen axes. If you rotate your brush using Perspective, the brush axes may no longer correspond to the screen axes, and movement on the brush axes will be different. In this example we'll use the Load Move requester to set some of our movements.

- Choose **Screen Format** from the Picture menu and change your format to Lo-Res 320 x 200, Screen size page, and 32 colours palette.
- Choose **Page Size** from the Picture menu and change page size to Screen 320 x 200. Click OK.
- Choose **Frames>Set #** from the Anim menu and set the number of frames to 20.
- Choose **Load** from the Brush menu an load the brush named DPaintTitle brush from the Brush drawer on your Media disk.
- Choose **Palette>Use Brush Palette** from the Colour menu.

You should now have a clear page and the DPaintTitle brush ready to work with.

- Choose **Perspective>Do** from the Effect menu to enter Perspective mode.
- Move the brush down near the bottom of the screen and press Shift-Keypad 7 to flop the brush over on its back.
- Click to paint down the brush.

To flop the brush over on its back, you rotated it -90° on the X axis (see the Title Bar) and shifted the brush axes so that they no longer correspond to the screen axes. Figure 6.8 illustrates the change in the brush axes.

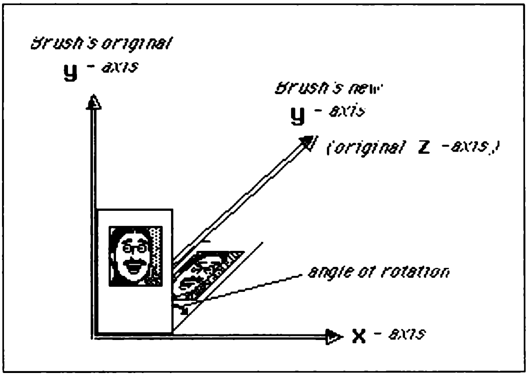


FIGURE 6.15 THE CHANGE IN A BRUSH'S AXES UPON ROTATION.

Now if you use the Move requester to move the brush along the Y axis, you will get different results depending on whether or not you have selected the Brush button.

- Display the Move requester, and click Load.
- When the Load Move requester appears, load the file called Animbasics1.Mov from the Move drawer of Examples.
- Click Preview from the Move requester.

The wire frame model of your brush moves upwards, just as you would expect when moving along the screen axis.

- Click the Brush button beside the Distance edit boxes. A check mark (√) appears in the box. Now click Preview and watch the direction the brush moves.

This time the brush moved into the distance along the Y axis of the brush. As Figure 6.15 above shows, the brush's Y axis is the same as the screen's Z axis when you rotate backwards -90°on X as we did.

Rotation on the Brush's Axis

You may have already guessed what will happen when we rotate the brush on its own axes rather than on the screen axes, but this is sometimes difficult to visualise, so we'll give an example.

- Click Cancel to close the Move requester
- Right-click CLR and select All Frames in the requester to clear all frames.
- Choose **Perspective>Reset** from the Effect menu to reset all of the Perspective settings.

At this point you once again have your brush in the original orientation and are in Perspective mode. Now we'll rotate the brush on the Z axis, so that the X and Y axes of the brush no longer match the X and Y axes of the screen.

- Hold down `2` on the keypad until the brush has rotated 45° on the Z axis. You'll see the degrees of rotation in the right side of the Title Bar.
- Paint down the brush in the middle of the screen.
- Press `M` to display the Move requester.
- Click Zero in the requester.
- Click Load. When the Load Move requester appears, load the file called Animbasics2.Mov from the Move drawer of the Media disk.
- Make sure the Brush button beside the Angle edit boxes doesn't have a √ on it.
- Click Preview.

With the settings above, you'll see the brush tumble toward the screen on the X axis. Remember that the brush is rotating on the *screen's* X axis. Now let's look at a rotation on the brush's X axis.

- In the Move requester, click the Brush button beside the Angle edit boxes; click Preview.

This time the brush spins around its own X axis instead of tumbling toward the screen. The idea is the same for all rotations, though it isn't always easy to predict what a complex set of rotations will look like. You'll probably find that most of your moves can be accomplished with rotation around only one axis at a time. And once you get used to rotations on the brush axes, we think you'll use these most often, so brush rotations are the default setting.

Tip If this last exercise was less informative than you had hoped, you should probably review the chapter on Perspective. There you will find more examples that might help you better understand the difference between screen and brush angles.

Now that you've seen some of DeluxePaint's animation features, you might like to play around a little. Load the animations from the Examples disk and play them. There are several AnimBrushes on the disk that you can combine with the Ocean Background.picture to form an aquarium scene. When you feel you're ready to see some more of DeluxePaint's animation features, move on to the next chapter. It shows you how to create some interesting animation effects by combining different features of the program.

Chapter 7

ANIMATION EFFECTS

This chapter introduces several interesting animation effects and a host of animation tips. We strongly recommend that you work through this chapter and complete the Amazing Bouncing Ball section, which serves as a good test of your knowledge of DeluxePaint.

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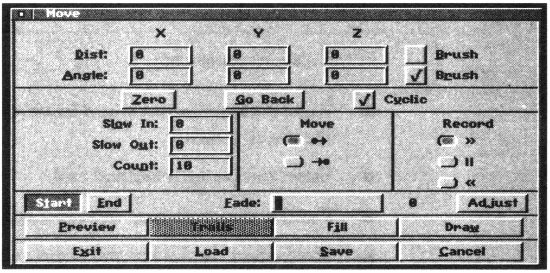
ffects

In the following sections you'll create some interesting animation effects. Many of these effects are not obvious, so it is worth your time to follow closely and work along.

NOTE: As you begin each section that uses the Move requester, reset the requester to its default settings. Our instructions will tell you only which settings you need to change out of the defaults when you first open the requester. Figure 7.1 shows the Move requester in its default settings; use this as a guide if you need to check your own settings.



Move

	X	Y	Z	
Dist:	0	0	0	☐ Brush
Angle:	0	0	0	☑ Brush

☑ Cyclic

Slow In: 0
Slow Out: 0
Count: 10

Move: ● ↔ ○ →|

Record: ● » ○ ॥ ○ «

Fade: 0

FIGURE 7.1 MOVE REQUESTER SHOWING DEFAULT SETTINGS

efore You Begin

- Make sure you are in Lo-Res mode with 32 colours. Set your number of frames to 40. Make sure you are using the Compressed memory model.
- Make sure FastFB is selected in the Prefs menu.

uick Effects

These effects are good examples of how multiple features of DeluxePaint combine to make simple animation easy to create.

eceding or pproaching shapes

This technique creates the effect of a shape moving off into the distance. Notice that this involves using a keyboard command while you paint with the mouse button down.

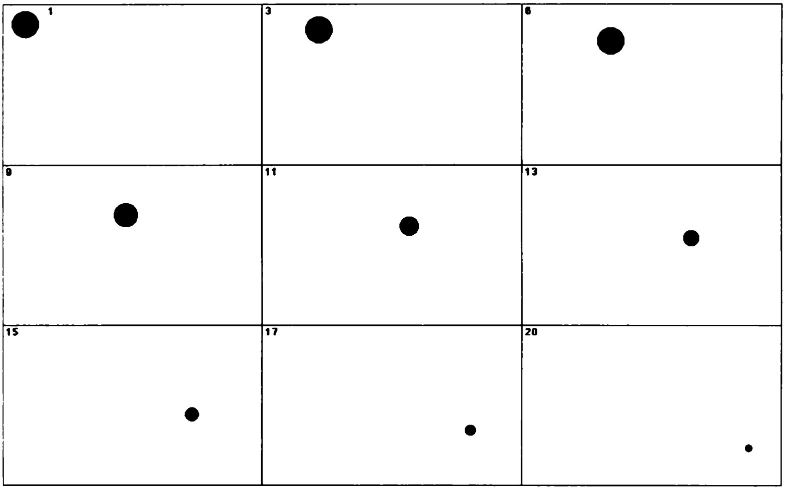


FIGURE 7.2 A RECEDING CIRCLE

- Right-click the largest round brush and stretch the brush to be about the size of a nickel.
- Select the Dotted Freehand tool.
- Position the brush near the upper left corner of the screen.
- Hold down the Alt key and begin animpainting in a curve downward toward the lower right area of the screen. As you paint, release the Alt key and press the - (minus) key repeatedly to shrink the brush as it moves.

When you play back the animation, the gradual shrinking of the brush makes it look as though it is receding into the distance. Play the animation backwards, or create a new one using the = (equals or plus) key to enlarge the brush, and the brush will appear to approach from the distance. This example used a built-in brush, but you can do the same thing with a custom brush.

Brush Erosion

The **Edge>Trim** command in the Brush menu makes it easy to have an object dissolve into nothing. You stamp the brush, trim some away, step to the next frame, and stamp again. The real trick is to use the keyboard to do all of your frame changes, trimming, and brush stamps.

- Select black as your background colour and clear all of your frames.
- Load the DPaintTitle brush from your Media disk. Choose **Palette>Use Brush Palette** from the Colour menu. Stamp the brush in the middle of frame 1
- Display the Move requester. Click Zero to set all of the Distance and Angle edit fields to 0.
- Set the Count to 1. Make sure that all of the other options are set to their defaults. Click Draw.

- Press Shift-o to trim the brush. Press Shift-m to display the Move requester and click Draw. Repeat this step until the brush has completely disappeared. (It will take about 11 frames.)

Using the Move requester to stamp your brush saves you from having to carefully position the brush on each frame. You can also accomplish this by positioning the brush once and then using the keyboard equivalent Amiga-Left Alt to click the left mouse button. (We recommend that you press the Amiga key first and then press the Alt key quickly once for a single stamp, because pressing the keys in the opposite order will start animpainting over many frames.)

Since you didn't use all 40 of your frames, we'll use the **Control>Set Range** option in the Anim menu to play just the frames you painted.

- Choose **Control>Set Range**. In the Set Play Range requester, set the From field to 1 and the To field to 12. Click Range. Click OK.
- Now press 4 to play your animation and you'll see your brush dissolve repeatedly until you press *space bar* or click to stop the animation. (If the animation is moving too quickly, press the left arrow key to slow it down.)
- Before you leave this example, choose **Control>Set Range** again and click the All Frames button.

Animated Fades

This example shows you how to use the Fade feature in DeluxePaint V's Move requester. We will create a simple 40 Frame animation of a title fading out to the background.

- Load the DPaintTitle brush from the Brush drawer on your Media disk.
- Choose **Palette>Use Brush Palette** from the Colour menu. Select the dark grey from your palette as your background colour.
- Clear all frames of you animation and go to frame 1 (Shift-1)
- Press `M` (Shift-m) to display the Move requester. Click Zero to clear out the distance and angle fields. Set the count to 40 if not already so.
- Click Start and then click Adjust and place the Brush in the centre of your screen. Press Return or Enter to exit Adjust mode. Make sure the Fade slider is at 0.
- Click End and then change the Fade slider to 255 (all the way to the right).
- For added effect, type `360` in the Z angle edit field with Brush checked on.
- Click Draw, and when the move requester is done with your animation, press 6 to watch it fade out and back in as it ping pongs. Keep your animation in memory, you may want to use it for the next animation effect tip.

The larger your palette size and the more like colours you have between the brush and your background, the better your fade turns out.

Animation Pauses

Often an animator wants to pause on a certain frame for from half a second to several seconds to give an animation that certain effect or feel. In the past, the only way you could do that in DeluxePaint was to duplicate the frame you wanted to pause on several times. This works fine, but it wastes precious memory you could be using for other things.

DeluxePaint V now allows you to perform Anim Pauses on a single frame or multiple frames without adding the memory overhead. Here's how you can use it:

Using the animation you created in the last effects tutorial we will modify the animation so that the first frame pauses for 3 seconds continues at full speed, then pauses at the last frame for 3 seconds as well. Here's how to do it:

- Go to frame one (Shift-1).
- Select **Frames>Set Frame Rate** from the Anim menu.
- Click on the Vary by Frame button (this tells DeluxePaint you are about to create a variable frame rate animation).
- Click in the Jiffies edit field and type in 180 (this is assuming you're in NTSC 1/60 frame rate). Hence to get a 3 second pause we have multiplied 60 X 3 = 180. In PAL modes you would type in 150 or 50 X 3. As a rule of thumb just remember this: Scan Rate or Frame Rate multiplied by the number of seconds you would like to pause is equal to the number of Jiffies you must enter in the edit field.
- Make sure that Current Frame is selected in the bottom portion of the requester. Click OK
- Play the animation (press 4), you'll notice that the first frame pauses for approximately 3 seconds.
- Let's put a pause at the end. Go to the last frame (Shift-2).
- Select **Frames>Set Frame Rate** from the Anim menu again.
- Click in the Jiffies edit field and type in the same number you did for frame 1 (180 for NTSC, 150 for PAL).
- Again, make sure Current Frame is selected and click OK.
- Play the animation forward (press 4) or ping-pong it (press 6) and you'll see that you've easily modified an existing animation to pause at the beginning and end very easily. You may never have to duplicate a frame for speed effect ever again.

Animations you have modified using vary by frame will save out with that information, so that when you play them back in the DeluxePlayer or reload them into DeluxePaint you don't have to set up the pauses again.

Expanding Circles

This example shows you how to create the effect of a circle expanding outward like a "sonar blip." You use two DeluxePaint features to help you align the circles and make them grow uniformly: Grid and the 2 key (the Next Frame keyboard equivalent).

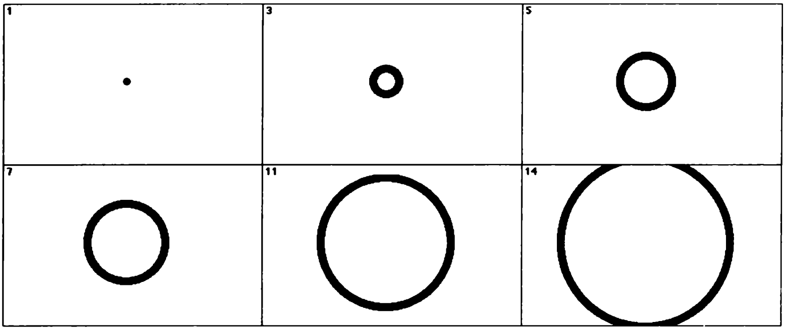


Figure 7.3 Expanding Circles

- Clear all frames of your animation and go to frame 1. Turn on the Grid with X and Y spacing of 8.
- Select the second-largest round built-in brush and paint a dot in the centre of the screen.
- Choose the Unfilled Circle tool.
- Start from the dot in the centre of the screen and drag out a circle that is just one grid point wider than the dot, but don't release the mouse button. Press the 2 key to move to the next frame. Now release the mouse button.

At this point you have a dot on frame 1 and a small circle on frame 2.

- Continue to follow the last step above to paint larger and larger circles on successive frames until your circle reaches the sides of the screen.

When you play your animation, you'll see one circle expanding outward. If you're adventurous, try picking up your entire animation as an AnimBrush and animpainting it onto your existing animation by starting it on frame 5. This will give you an animation of two circles expanding outward.

Trails

This example demonstrates the use of Trails. You'll find this option in the Move requester makes it easy to create impressive title effects.

- Clear all frames.
- Load the brush DpaintTitle from the Media disk. Choose **Palette>Use Brush Palette** from the Colour menu.
- Press Shift-2 to go to the LAST frame. You should be on frame 40.
- Stamp the brush at the bottom of the screen. Display the Move requester. Click Zero. Set the Z Distance to -1500. Select the Come To option for your Move Direction. (Make sure the Fade slider is reset to 0.)

The Come To option tells DeluxePaint that the position of the brush is where you want the animation to end — you want the animation to "come to" the brush position and frame.

- Click Preview.

  There is a slight delay, and then the preview plays, starting at the distant position [Z=1500] and coming closer.

- Instead of clicking Draw, click Trails, and let it record.

By clicking Trails, you tell DeluxePaint to carry the cumulative effect of each frame forward as it draws. The result is that the brush leaves a trail as it moves through three-dimensional space in your animation.

- Press 5 on the main keyboard for a single play of the animation.
- For added effect, add a Fade to the start or end of the animation.

The Slinky

The Slinky is a modified version of the standard Trails title. You've probably seen this effect on many television sports shows. A special feature of this effect is that it uses the Stencil in combination with the Move requester. This combination can be very powerful when used properly. When a stencil is used with the Move requester, DeluxePaint remakes the stencil for each frame as it renders the move.

- Clear all frames.
- Load the DPaintTitle brush if you don't already have it. Choose **Palette>Use Brush Palette**.
- Step to the middle frame of your total. For example, if you have 40 frames as we suggested, move to frame 20 by typing 3 to access the Go To Frame requester. Stamp the brush down near the centre of the screen.
- Display the Move requester. Click Zero. Make sure that both Brush buttons are unchecked. Also, be sure Fade is set to 0 at Start and End.
- Set the Z Distance to -1500, and set the Z Angle to 0. Set the Count to 20. Select the Come To option. Click Trails.

As in the Trails effect above, DeluxePaint paints your title with the cumulative image carried forward to each successive frame.

- Step to frame 40 (use Shift-2 to go to the last frame quickly).

Now you need to create a stencil so you can "paint behind."

- Choose **Stencil>Make** from the Effect menu. In the Make stencil requester, click the background colour (black), click Invert, and click Make to lock all colours but the background.
- Display the Move requester. Leave all of the other settings the same, but select the backwards Record Direction (<<). Click Trails.

Because you reversed the Record direction, DeluxePaint begins this move by painting on frame 40. It then steps one frame backwards and paints the cumulative effect of frame 40 and the new brush position on frame 39. This is where the Stencil comes into play. Because the colours in the title are stenciled, the second brush stamp appears to be painted "behind" the single image that was stamped on frame 40. Though, in fact, it was painted over the single image.

The resulting animation should have your brush moving from the distance, leaving Trails, until it gets to the nearest position, at which point the Trails start erasing from the back forward.

- Before you move on to the next effect, choose **Stencil>Free** from the Effect menu.

Curving Titles

This example shows you how to create the effect of a title moving across the screen on a curved path using the curve tool instead of the Move requester.

- Clear all frames.
- Load the DPaintTitle. brush from your Media disk. Choose **Palette>Use Brush Palette** from the Colour menu.
- Go to the last frame (frame 40) and stamp the brush near the bottom of the screen. Click Undo.

TIP Clicking UNDO immediately after stamping the brush helps ensure that your results are what you expect. This is particularly important if you are using a Brush Mode in your move, because DeluxePaint paints on the screen you stamped on when it paints the move, and stamping twice on the same screen will give a different result from a single stamp.

Of course, with DeluxePaint V you can also use the Start and End Adjust buttons to place your starting or ending positions without stamping down the brush at all.

- Display the Move requester, and click Zero. Be sure Record is set to forward (>>) and set the Count to 40.
- Set the Z distance to -1200. Select the Come To option Click Draw.

DeluxePaint paints the brush moving toward the screen from the distance.

- Pick up the animated title as an AnimBrush. (Be sure you are on frame 1 when you pick up the brush and that you enclose the entire area of the move — the bottom half of the screen in this case.)
- Press Alt-x to place the brush handle in the lower right corner of the brush so you will be able to click it off-screen.
- Clear all frames.
- Right-click the Curve tool to display the Spacing requester. Click the N Total button and set the total to 40. Click OK.

The Spacing requester lets you tell DeluxePaint exactly how many brush stamps you want to use to paint your curves, lines, and unfilled shapes. By setting the Spacing to N Total of 40, you'll get 40 stamps of the brush. Since you have 40 frames, when you use the brush to animpaint, you'll get one stamp of the brush on each frame.

- Press Shift-7 to go to the first cel of the AnimBrush.
- Position the brush at the left side of the screen and midway between the top and bottom.
- Hold down the Alt key and the left mouse button and drag down to the lower right corner of the screen. (You'll see your title drawn along the path of your curve.)
- Release the mouse button and define the shape of the curve while still holding down the Alt key. When the curve is a shape you like, left-click to begin animpainting.

When DeluxePaint is finished painting your curve, press 5 to play the animation once. You'll see the brush move into view and curve its way down to the lower right corner of the screen.

Tumbling 3D Objects

Like the Curving Title effect above, this effect also uses the curve tool to move an AnimBrush along a curved path. However, in this effect, you use an object that looks three-dimensional, and you tumble it at the same time you move it toward the screen.

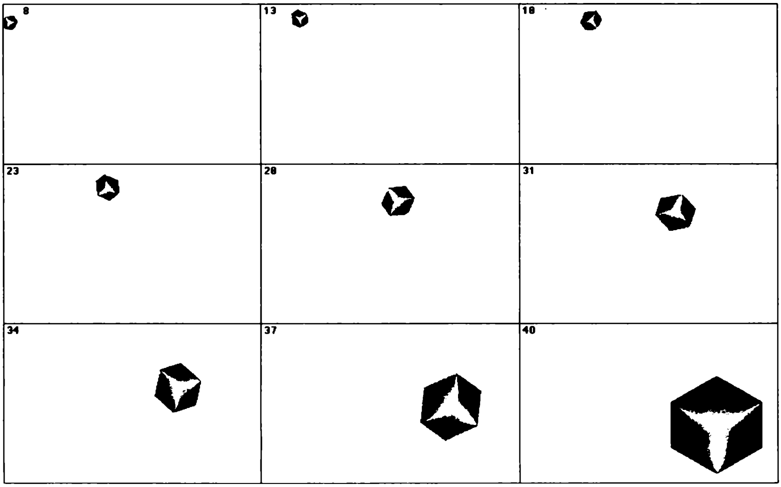


FIGURE 7.4 OBJECT TUMBLING INTO THE SCREEN ALONG A CURVED TRAJECTORY

- Clear [illegible] frames.
- Load the brush named GradientCube from the Brush drawer on your Art disk. Choose **Palette>Use Brush Palette** from the Colour menu. Go to the last animation frame (frame 40). Stamp the brush in the centre of the screen. Click Undo.
- Display the Move requester. Set the Z Distance to -1200 and the Z Angle to 720 (with Brush check). Select the Come To option Click Draw.

DeluxePaint paints your cube rotating 720° and moving toward you from the distance. Now you need to pick up this tumbling object as a brush. You must pick up the entire animated area, beginning at frame 1 where you see only a tiny object. Here's how:

- Click the Brush Selector.
- Go to frame 40, where the object is largest.

From this frame you can easily see how large an area you need to select to enclose the entire animated area of the gradient cube.

- Hold down the Alt key and enclose the object with your cross-hair, but don't release the mouse button. (You can release the Alt key.)
- Press 2 to step forward to frame 1. Release the mouse button.

Now you have your AnimBrush of the object tumbling and moving toward you. In the next step, you use the curve tool and Spacing to give it a trajectory across the screen.

- Clear all frames.
- Right-click on the Curve tool. Set the Spacing requester to N Total 40.
- Place the brush handle in the lower right corner of the brush so you will be able to click it off-screen.
- Press Shift-7 to go to the first cel of the AnimBrush.
- Position the brush at the left side of the screen and midway between the top and bottom.
- Hold down the Alt key and the left mouse button and drag down to the lower right corner of the screen.
- Release the mouse button and define the third point of the curve while still holding down the Alt key. When the curve is a shape you like, click to begin animpainting.

Notice that even though the cube has only two true dimensions, the combination of the three-sided view and the tumble make it appear as though the brush is three-dimensional.

Planetary Orbits — Brush Handles

This example shows you how to create an animation that simulates the orbit of a planet. This demonstrates the importance of brush handles—when you rotate a brush, the rotation always takes place around the brush handle.

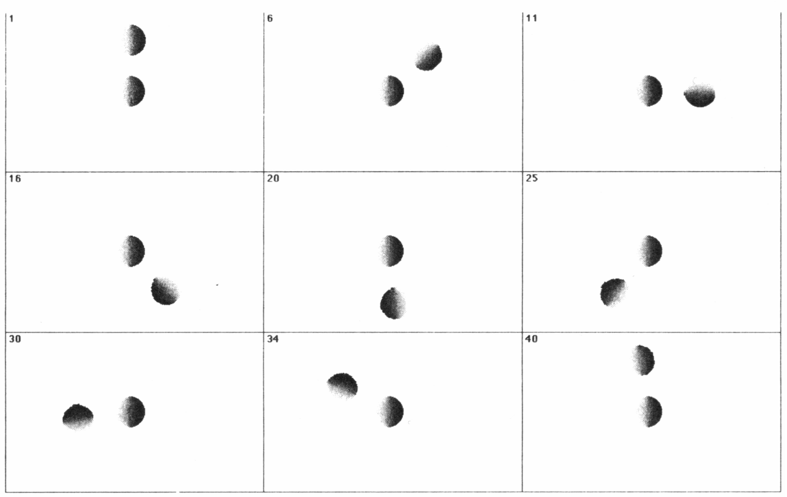


FIGURE 7.5 ORBITING PLANETS USING BRUSH HANDLE

- Paint a circle about the size of a quarter and filled with a gradient. Pick the circle up as a brush.
- Clear all frames.
- Stamp a copy of the brush in the middle of the screen.
- Display the Move requester and click Draw to draw 40 frames of your brush.
- If you are holding the brush by its corner, first choose **Handle>Rotate** (Alt-x) from the Brush menu until the brush is centred. Now choose **Handle>Place** from the Brush menu.

Your brush now has a cross-hair running through the centre of it.

- Position the brush about an inch and a half above the circle you painted in the middle of the screen. Hold down the left mouse button, drag straight down to the centre of the ball you painted, and release the mouse button.

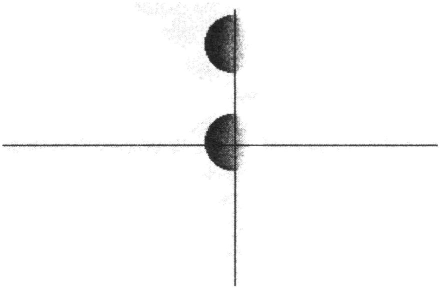


Figure 7.6 Placing the brush handle

Now your brush is offset from the cursor by about two inches. We'll use this brush to create an orbiting planet.

- Point at the centre of the stamped circle with the cursor and click. (This stamps your circle brush above the circle in the middle of the screen.)
- Display the Move requester. Set the Z Angle to 360. Click Draw.
- Play the animation back and you'll see that your planet orbits around the central circle!

Using the brush handle effectively becomes a little more complicated when you rotate over more than one axis, but you might want to spend a little time trying different settings to see the effects you can create.

Scrolling Backgrounds

This section shows you how to create a scrolling backgrounds from a single picture. We'll use the new Camera Move requester to do this.

Horizontal Panning

First, we'll pan horizontally across a background. All you need to create this effect is a picture with left and right edges that meet to form a seamless image.

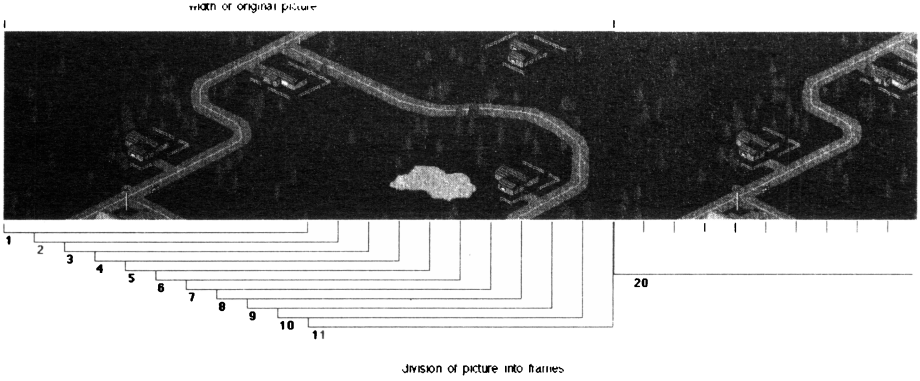


Figure 7.7 An example of a Scrolling Background

- Load the picture named WorldMap.lores from the Picture drawer (from the Examples disk).
- Type Ctrl-`j` (or select **Spare>Copy to Spare** from the Picture menu) to copy to the blank spare page. (We will use the spare page as the main animation page.)

Now we'll use the Camera Move requester to make the background picture scroll seamlessly from left to right. Because the image was designed to wrap seamlessly from edge to edge, the edge of the picture won't be noticeable—it will appear that we are continually scrolling to the right.

- Open the Camera Move requester (**Anim>Camera Move...**) by typing Shift-n.
- Change the Count to 32 — this means that we will be creating a scrolling animation over 32 frames. Make sure Wrap and Cyclic check mark gadgets are checked. When Wrap is checked, the left edge of the screen appears when you scroll past the right edge of the screen.
- Press Start. This means that we will be setting the position of the first frame of animation. Click Adjust, and the Adjust bounding box appears on the screen.
- Click and drag on the "field guide" bounding box so that the right edge of the box is flush with the left edge of the screen.

❖ You can use the Shift key to constrain your mouse movement so that you only move in the X plane. Press Shift, then left click and drag to move the bounding box.

- Press Enter or Return to exit the "Adjust" mode (just like in perspective).
- Press End, and then Adjust.
- Place your screen cursor directly on top of the crosshair that is already on the screen, and press . (period key) on the keypad. This centres your field guide under your cursor (use it as a short cut).
- Press Enter or Return to exit the Adjust mode.
- Your X Dist box should read 319 or 320, and all other values should be 0. Click Preview to check the preview to make sure the box moves from the left edge of the screen to the centre of the screen.
- If the preview looks OK, press New to create new animation frames.
- When DeluxePaint is finished, press 4 to loop play the animation. You now have a scrolling Earth animation.
- Press `s` while in the animation to view the new frame rate speedometer, which shows the current frames per second value.
- Save the animation you've just created — you'll need it for another effects tutorial later in this chapter where we'll show you how to create a revolving globe animbrush from this animation.

This example showed you how to create a scrolling background that moves left to right, but you can create one that moves in any direction by following the same basic steps. You can also use a picture that is larger than an animation frame to create your scrolling background. To do this, you create or paint your large picture on the spare page without changing the dimensions of the main page. Then repeat the steps above, substituting a larger X move distance to move the width of the spare page.

Vertical Panning

In the following example, we'll pan upward on a screen background using the Camera Move requester.

- Load the EArthCore.HAM image from the Picture drawer of the Examples disk. Press Yes if the program asks if you want to switch screen modes to the image. (The image is in 320x200 HAM6 mode with a screen size of 320x1080.)
- Press j to switch to the spare page.
- Choose **Page Size...** from the Picture menu, and click Screen to change the animation page size to 320x200 pixels.
- Select **Camera Move** from the Picture menu (Shift-n) to bring up the Camera Move requester.
- Click Zero to clear the distance parameter boxes to 0. Change the Count setting to 40.
- Click Start, and then Adjust.
- Click and drag on the bounding box so that the bottom edge of the box is flush with the bottom edge of reduced image on the screen. If the box isn't visible, press period (.) on the keypad.
- Press Return or Enter to exit Adjust mode.
- Click End, and then Adjust.
- Click and drag on the bounding box so that the top edge of the box is flush with the top edge of the reduced image on your screen.
- Press Return or Enter to exit Adjust mode.
- Do a Preview to see if the box moves from the bottom edge of the image to the top of the image.
- Press New to create a new 40 frame animation.
- Press 6 to ping pong play the animation you've just created. Use the Set Frame Rate requester to slow down the animation if it's too fast (or press the left cursor key repeatedly while the animation is playing back).
- For added effect, add a pause at the beginning and end of the animation using the Set Frame Rate requester.

Filled Plane Effects

The following effects use the Fill option in the Move requester to create filled planes that move. In the first example, the plane moves toward you so that it seems as though you are traveling, in the second example, the filled plane rolls as though you are doing a roll in an aeroplane.

- Set the number of frames to 20.
- Create a simple filled circle brush to use for your filled planes. (If you are on a 1 megabyte Amiga, don't add any gradient or other detail, because these filled plane moves require a lot of memory even with a simple brush.)

Tip For the Moving Ground example, it helps if your brush height is a multiple of the number of frames you have. This will produce smoother results. (Use Coordinates in the Prefs menu when you draw the brush and pick it up to confirm that it has the dimensions you want.)

Moving Ground

- Enter Perspective. Press the Enter key on the keypad.
- Position the brush near the bottom right corner of the screen and press Shift-Keypad 7 to rotate the brush -90° on the X axis. Stamp down the brush. Click Undo.
- Right-click the Grid tool and note the number listed for the Y Grid value in the Perspective requester. Click OK.
- Display the Move requester. Set the Y Distance to the same number as the Y Grid value only make the number negative. Click the Brush button beside the Distance boxes so that you move along the brush's coordinates. Make sure the Count is set to 20. Click Fill.

DeluxePaint will take a while to paint your 20 frames. When it is finished, the animation will show a plane of circles moving toward you.

Rolling Horizon

- Clear all frames. Choose **Perspective>Reset** from the Effect menu.

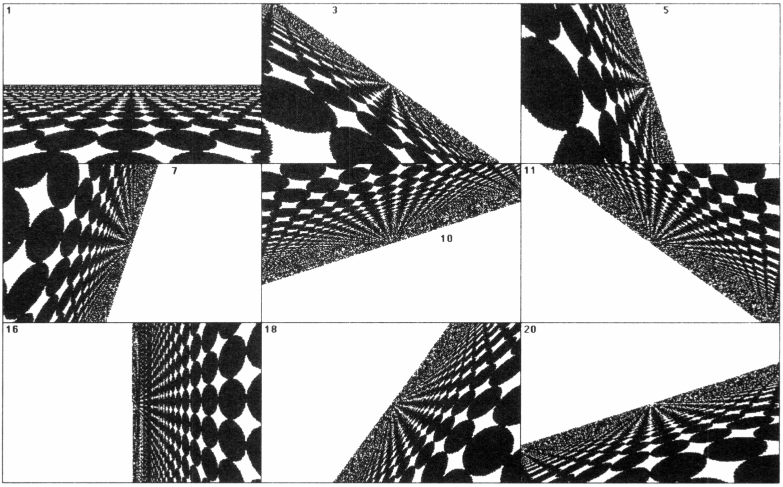


FIGURE 7.8 ROLLING HORIZON

- Press Enter on the keypad twice (this takes you out and then back into Perspective).
- Position your brush near the bottom of the screen. Rotate the brush to -90° on the X-axis. Stamp down the brush. Click Undo.

- Display the Move requester. Click Zero. Set the X Distance to -640 and the Y Angle to 360. Make sure both Brush buttons are selected. Click Fill.

Again, DeluxePaint takes a while to paint your 20 frames. When it is finished, the animation will show the filled plane of circles rotating 360° around the perspective centre.

Spinning Effects

Here are two terrific spinning effects. In the process of creating these effects, you'll need to use a range of DeluxePaint features. At this point we assume you are familiar with all of the features, and our instructions are, at times, general. These exercises are a good way to test your knowledge of the program; if you get stuck, you should look up how to perform the task we describe.

Amazing Bouncing Ball

A bouncing ball sounds complicated, doesn't it? With traditional media, it would indeed be tedious, but with DeluxePaint, you can master the effect in no time at all.

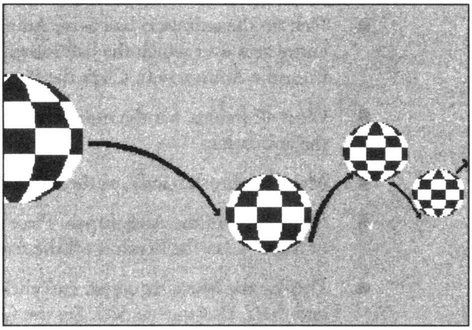


FIGURE 7.9 AMAZING BOUNCING BALL

To produce the spinning effect we want for the bouncing ball, you would ordinarily need to do several things:

☐ Create a range of colours to cycle

☐ Create a checkerboard pattern and wrap the pattern onto a circle to make it appear spherical.

☐ Create a ball-shaped brush and rotate it so the ball spins on an angle.

These steps are not necessary for this exercise, however, because we have created a ball for you to use.

- Load the brush named Ball.Brush from the Media disk. Choose **Palette>Use Brush Palette** from the Colour menu.
- Set the number of frames to 10 and clear all frames.
- Press h to make the ball half its original size.

Now to give the ball some bounce.

- Go to Frame 1.
- Display the Move requester, and click Zero.
- Click Start, and then Adjust. Place the ball so that the bottom edge is near the bottom of the screen. Press Enter or Return to exit Adjust mode.
- Click End, and then Adjust. Place the ball close to the top of the screen. Press Enter or Return to exit Adjust mode.
- Set Slow In to 10. Set the Count to 10. Select Go From. Click Preview

  The brush should move upward until it almost reaches the top of the screen. If it goes too far or not far enough, adjust the end position and try Preview again.
- Click Draw.

Now that you've given the ball some bounce, you pick it up as a brush and send it bouncing off into the distance by using the Move requester.

- Pick up the animated ball as an AnimBrush (make sure you enclose the entire area over which the ball moves). Choose **AnimBrush>Settings** from the Anim menu. Click the Ping Pong icon. Click OK.
- Clear all frames. Set the number of frames to 40 and Go to Frame 1 of the animation.
- Move the brush handle to the lower right corner of the brush.
- Go to cel 7 of the AnimBrush. Place the cursor in the lower left corner of frame 1 (so the brush is off the screen) and stamp down the brush.
- Display the Move requester, and click Zero. Set the X Distance to 600 and the Z Distance to 500. Set the Count to 40. Set Slow In to 0. Click Draw.
- Turn on Colour Cycling and play the animation.

You'll see a remarkably realistic animation of a spinning, bouncing ball. If you are adventurous, try creating a plane for the ball to bounce on. You'll need to adjust the plane's position to match the bottom of the ball where it bounces. Then you create the plane on the Spare page and merge it behind the animation. When you choose the **Spare>Merge in back** option, DeluxePaint asks if you want to merge behind all of your frames. This feature makes it easy to build up animations from several elements.

Creating the Spinning Ball

Here are the steps for creating the spinning ball. first you need to create a range of colours to cycle. These will ultimately produce a spinning effect.

- Display the Colour Mixer dialogue and create a spread of eight identical reds and eight identical whites.
- Choose Ranges from the Colour menu to display the Range requester. Select an empty range or clear the first range and define these colours as a range by setting the eight whites and eight reds next to each other along the Range bar. Set the Rate for colour cycling to the maximum.

Select Random Dither and move the slider all the way to the left to turn dither completely off. (Make sure that your reds and whites aren't in any other ranges.)

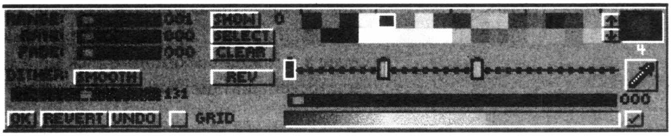


FIGURE 7.10 RANGE REQUESTER

Now you create a checkerboard pattern and wrap the pattern onto a circle to make it appear spherical.

- Display the Fill Type requester. Select the first gradient fill option for a plain horizontal fill.
- Select the red and white range you created. Select the Filled Rectangle tool. Turn on Coordinates. Select black as your background colour and clear the screen. Paint a rectangle that is 44 pixels wide and 22 pixels high.

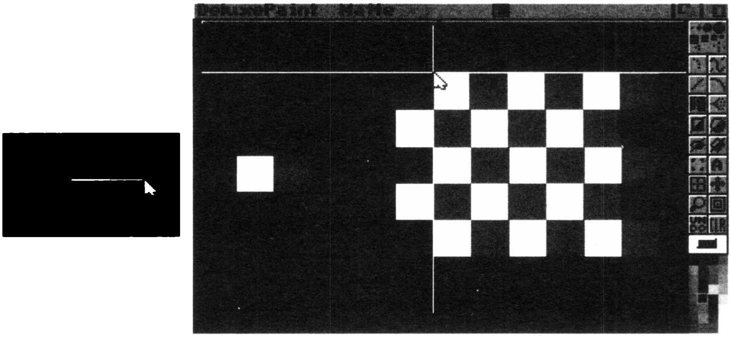


FIGURE 7.11 THE TWO COLOUR RECTANGLE AND THE CHECKERBOARD.

You should now have a rectangle that is white on one side and red on the other.

- Pick up your rectangle as a brush and create a red and white checkerboard pattern. Then pick up exactly a 5 square by 5 square section of the checkerboard as a brush.

TIP Using the grid tool can help. Set the spacing to 22x and 22y to easily place the brush.

- Clear the screen. Display the Fill Type requester. Select Brush Wrap fill.
- Turn on BeSquare in the Prefs menu (so your circle will be truly a circle). Paint a filled Circle that is approximately 3 inches across.

There it is. Press the Tab key to see the ball cycle. You'll find more information about colour cycling and colour ranges in Tutorial Two of Chapter Four: *Paint Tutorials.*

The Spinning Globe

This example shows you how to create a spinning globe from the WorldMap picture on your Examples disk. To accomplish this effect, you create a scrolling background, pick up a section of the background as an AnimBrush, and use it to animfill a circle using the Wrap fill type.

❖ If you are working on a 2MB Amiga, we recommend that you start this example from a fresh start of the program. This fresh start will ensure that you have no memory fragmentation and you have enough memory to work with. This example is very memory intensive and may not work on some 2MB configurations.

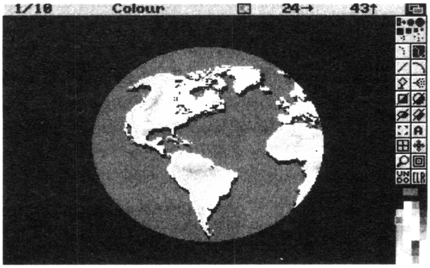


FIGURE 7.12 THE FINAL GLOBE ANIMBRUSH SEQUENCE

- Load the scrolling earth animation you created and saved a few tutorials ago. (If you didn't save it, or haven't done that tutorial yet, please do so now and then continue the steps below.)
- Press the 4 key to confirm that you have a scrolling map without any glitches. If it's moving too fast for you, slow it down using the left arrow key.

Now you need to pick up half the scrolling image as an AnimBrush.

- Go to frame 1.
- Choose **Free** from the Brush menu to free up any brushes you may have in memory.
- Choose **AnimBrush>Pick Up** from the Anim menu. Select the left half of the image. Enter 32 in the requester to pick up the left half of your animation as an AnimBrush.

Now you have an animbrush of a scrolling map. The trick is to convert that to a ball shape.

- Clear all frames to a black background.
- Choose **BeSquare** in the Prefs menu.
- Draw a solid colour filled circle in the middle of frame 1. (Make the circle about 3 inches across, and preferably a blue colour.)

- Choose **Frames>Copy frames** from the Anim menu and select the All Frames button. This will copy frame 1 to all of the animation frames.
- Right-click on the Fill tool to display the Fill Type requester. Choose Wrap as your fill type, and click OK.
- Choose **AnimBrush>Use** from the Anim menu. Press Shift-7 to position your AnimBrush on its first cel. (You will not actually see the brush, but it will be ready in memory.)
- Press F3 to place your animbrush in replace mode. (This is done so that your globe's background is the same as your animbrushes.)
- Select the Fill tool. Hold down the Alt key and click on the centre of your solid coloured circle.

DeluxePaint will automatically "animfill" to wrap the map image into each of your circles. When it's finished, play the anim to see your spinning globe. All that's left now is to pick it up as an AnimBrush and move it through three dimensions. We'll leave that part up to you. Or if you like, try creating spinning balls with other images, like faces or interesting patterns. Once you've mastered this feature, you'll find it hard to resist.

Multiple animation palettes

DeluxePaint now supports multiple palettes in an animation. This tutorial will show you how to force a different palette to a specific amount of animation frames.

The last tutorial showed you how to create a spinning globe. Before we show you how to force a multiple palette let's add an animation with a different palette to the end of the spinning globe anim.

- First save your spinning globe animation somewhere on your hard drive or to a floppy disk.
- Press Shift-2 to go to the last frame.
- Go to your spare page by pressing the letter `j` on your keyboard. The title bar should say SCRATCH.
- Load DOGGIE BACKGROUND from the picture pull down menu.
- Toggle back to your globe animation by pressing `j` again.

Let's use the Camera Move Requester to create a new animation which we will put after the current one.

- Press `N` to bring up the Camera Move Requester.
- Lets adjust the starting frame by pressing Start followed by the Adjust button in the requester. This will bring up the Doggie Background from the Scratch page.
- Move your cursor all the way up to the far upper left corner of the screen and press the '.' key in the perspective keypad.

The period key centers the camera view where the cursor is currently positioned.

- Press the Enter key in the perspective keypad to exit the adjust screen.
- Press End followed by the adjust key again to adjust the end of this camera move.
- Move your cursor all the way up to the far lower right corner of the screen and press the '.' key in the perspective keypad.
- Press the Enter key in the perspective keypad to exit the adjust screen.

You will notice that when you are adjusting these frames the palette does not appear correctly. Do not worry about this. We will fix this a bit later.

- Make sure that you have WRAP checked in the requester.
- Set the Frame count to 20.
- Press AFTER in the requester to tell DeluxePaint that you want to add this new animation after the spinning globe.

Play the animation to see the results. You will notice that spinning globe animation is followed by a diagonal wrap animation of the DoggieBackground Picture. You will also notice that the Doggie Background animation has scrambled colors. Let's solve this by forcing a palette to the second animation.

First let's tell DeluxePaint what frames you want to add this new palette to.

- Select SET FRAME PALETTE... from the ANIM/FRAME pull down menu.

Since the new DoggieBackground animation covers frames 33 through 52, enter these numbers in the range frame count.

- Select the Range button, then select Make Palette.

This tells DeluxePaint that you want a separate palette for these range of frames.

- Click OK.

If you look at FRAME PALETTE INFO... in the ANIM/FRAME pull down menu you will see that there are two separate palettes assigned for two ranges of frames. Now all we need to do is change the palette for the second anim so it looks correctly.

- Press 3 on your keyboard to open the Go To Frame requester, and enter 33.
- Press `j` to go to the spare page.
- Pick up any part of the screen as a brush.
- Press `j` to go back to frame 33.
- Select USE BRUSH PALETTE from the COLOR/PALETTE pull down menu.

Now the two anims have their correct palettes.

NOTE: There are three other ways you can force a specific palette.

1. You can save a color set for a particular picture and then reload the color set into frame 33.
2. You can save a color palette for a particular picture and then reload the color palette into frame 33.
3. You can go to frame 33 and adjust the palette manually by editing the colors in the color mixer or the arrange palette requester.

Tips

This brief section lists some tips for using DeluxePaint's animation features. This is not a complete list of tips, so be sure you at least scan the rest of the manual if you are not inclined to read everything.

- You can use Fixed Background to see the current frame as you modify it for the next frame. This is very useful for freehand animations. Here's how it works:

  Create some animation frames and draw a figure on frame 1. Choose **Background>Fix** from the Effect menu. Choose a different colour to paint a modified version of the first figure. Press 2 to step to frame 2. Choose Background Free to stamp the modified figure on frame 2. You can repeat this process to paint the next modification, and so on.

- If you want your brush to grow (move toward the screen) in your animation, but you need to stamp it in the small size for proper positioning, you will get nicer results if you paint the brush large and then use the ' or Ctrl key in Perspective to shrink it before you paint it down for the move. This way the brush moves toward its original large size as it is drawn by the Move requester and the large size will not suffer from "jaggies."

- Slow Out and Slow In from the Move requester always affect both the Distance and Angle motions. So a falling, tumbling object won't look right — the tumble accelerates along with the fall. Here's a work around: Use Move to make a tumbling object without Slow Out or Slow In. Pick the object up as an AnimBrush. Now use Move to make this AnimBrush fall with Slow-Out for acceleration. The tumble stays at a constant rate, but the fall accelerates!

  Similarly, Move can't Slow-Out one Distance parameter and not the other. That means it can't make a cannonball fly at a constant X speed but a decelerating Y speed (to form a parabola). You can overcome this by creating the animation in steps as in the Amazing Bouncing Ball effect: Use Move to paint a ball falling with Slow In. Pick up the falling ball as an AnimBrush. Use Move (or the Straight Line tool with N Total spacing) to paint the falling ball moving across the screen at a constant rate.

- If you want an object to completely disappear when it flies off to infinity, here's a trick: Set the X rotation to 90° so that the brush turns "edge on" as it approaches infinity. This way no more than a single pixel line will remain of your brush.

- When you paint your brush down to begin a move, Undo immediately after you stamp the brush. This guarantees that the brush appears correctly on the current frame when the move is painted. Painting down your brush before a move is how you tell DeluxePaint where to start the move from. You don't need to leave the paint in place, since DeluxePaint paints that frame again as the first frame of the move.
- You can't stamp the brush behind you, but you can Move it there. If you want an object to start from behind the viewer and drop into the screen with a perfect, unbroken motion, do this: Start from the centre position and use the Move requester set to a Count of 1 to move the brush out to the position you want (for example, -1000 from the front of the screen). Now clear the screen or reload the background for the animation. Use the Move requester to move the brush forward enough Z distance to go from behind you past the centre position and off into the distance.
- If you have a series of pictures that use the same screen format and palette, you can use DeluxePaint V to give a slide show. Just load each picture into a frame (see Load in the Picture menu for loading multiple pictures) and set a slow frame rate or flip the frames manually with the 2 and 1 keys.

Spacing Tips

When you animpaint with the shape tools, use the Spacing requester to control the number of brush stamps used to draw the shape. In effect, this setting determines how many frames you will paint over.

Instant Marquees: Set the Spacing requester to N Total and the number of frames you have, and animpaint unfilled shapes using a built-in brush. Using the Spacing set to N Total for animpainting is especially good with the Circle tool, which otherwise paints a non-cyclical pattern. Also try setting Spacing to Every Nth Dot, especially with the unfilled Polygon tool.

Chapter 8

REFERENCE

DeluxePaint V's ***Reference*** chapter contains all the information you'll need to master the program, arranged in a way that's easy to use. The ***Tools*** section covers the Toolbox, explaining how to select, modify and use the tools to draw basic shapes or otherwise manipulate your image by colour, size, shape, or orientation. The ***Menus*** section covers all the options available in the pull-down menus. The menus are described individually, moving left to right across the Menu Bar, and down through each option.

Some entries in ***Reference*** cross-reference other parts of the manual or other sections of ***Reference.*** We recommend that you look at the cited section for more information about any cross-referenced entry.

Tools

When you start DeluxePaint V, the Toolbox appears on the right side of the screen. It contains built-in brushes, tools, the Colour Indicator, and the Palette.

❖ Select a tool by clicking its icon in the Toolbox.

You can hide the Toolbox to expose more of the painting area by pressing F10 (this hides the Toolbox and the Menu bar). You can then press F9 to display the Menu Bar *without* the Toolbox. Press F10 to display the Toolbox again.

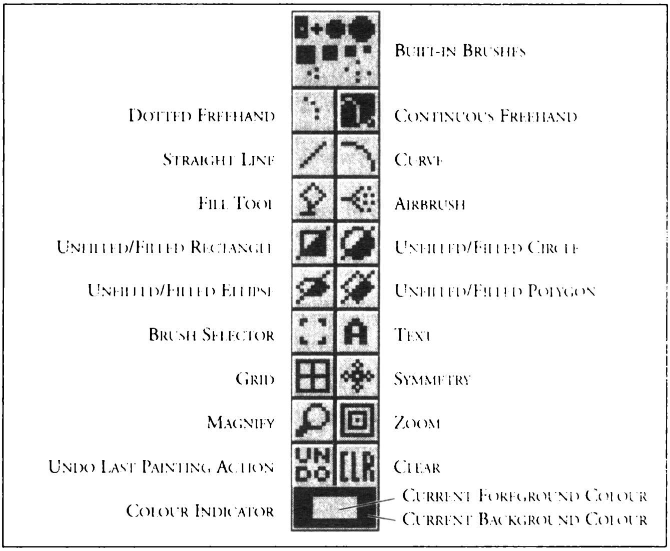

Built-in Brushes
Dotted Freehand
Continuous Freehand
Straight Line
Curve
Fill Tool
Airbrush
Unfilled/Filled Rectangle
Unfilled/Filled Circle
Unfilled/Filled Ellipse
Unfilled/Filled Polygon
Brush Selector
Text
Grid
Symmetry
Magnify
Zoom
Undo Last Painting Action
Clear
Colour Indicator
Current Foreground Colour
Current Background Colour

Figure 8.1 The Toolbox

The following tool descriptions include any keyboard equivalents that are available. And to help you learn these, we have suggested a mnemonic for each one. You'll find these especially useful if you want to hide the Toolbox as explained above. You can also find all keyboard equivalents in ***Appendix B.***

Built-in Brushes

There are ten built-in brushes you can paint with in the Toolbox. To select any built-in brush, click on it.

Right-clicking a brush invokes the resize brush option. When you move the brush to the screen, your cursor has diagonal arrows pointing outward. To increase or decrease the size of the brush, drag the mouse, and when the cursor is the size you want, release the button.

You can also change the size of the current brush dynamically, even while you're painting. Press the *plus* (+) key to increase the size of your brush (no need to press the Shift key). Press the *minus* (-) key to decrease its size. The icon in the Toolbox reflects any changes you make.

❖ The smallest a resized built-in brush can be is 1 x 1 pixel. The largest it can be is 100 x 100 pixels.

Dotted Freehand

Keyboard Equivalent: s — mnemonic — sketch

Lets you paint freehand with the current built-in (or custom) brush. Hold down the left mouse button to paint with the foreground colour, or the right mouse button to paint with the background colour. The tool paints in a series of "splats" or "stamps" of the current brush shape.

The spacing between each stamp depends on how fast you move the mouse — the faster you move the mouse, the greater the spacing between stamps. If you move the mouse slowly, there is no space between splats.

❖ We recommend you use this mode for drawing with custom brushes, or when using the different paint modes.

Holding down the Shift key while painting constrains the tool to move either horizontally or vertically, depending on the direction you move the cursor immediately after pressing Shift.

Continuous Freehand/Filled Freehand Shape

Keyboard Equivalent: d — mnemonic — draw.
D — Filled draw

Click in the upper left corner of the icon to select the Continuous Freehand tool. Click in the lower right corner to select the Filled Freehand Shape tool.

The Continuous Freehand tool paints the brush in a continuous line as you drag the mouse. This tool works like the Dotted Freehand tool, except that it never "splats." Instead, it connects point A to point B with a brushed line. The slower you draw, the smoother the lines. Fast freehand drawing may result in angular looking shapes, especially in higher resolutions.

Holding down the Shift key while painting with the Continuous Freehand tool constrains the tool to move either horizontally or vertically, depending on the direction you move the cursor immediately after pressing Shift.

Use the Filled Freehand Shape tool to draw filled freehand shapes. When you release the mouse button, your shape is filled using the current setting of the Fill Type requester. (If you release the mouse button before you reach the starting point for your filled shape, DeluxePaint completes the shape by drawing a straight line from the current mouse position to the starting point of the shape.)

Holding down *i* as you click on the Filled Freehand Shape tool causes the tool to paint shapes that are filled and then outlined with the current brush using the settings of the Spacing requester. (See the *Straight Line Tool* below for an explanation of the options in this requester.) If you use a custom brush as your current brush, it is possible to paint shapes that are filled with one colour and outlined with another. The outline is painted by tracing the shape with the current brush. Note that the shape is traced by the brush handle; if the handle is offset from the brush, the outline will be offset from your filled shape.

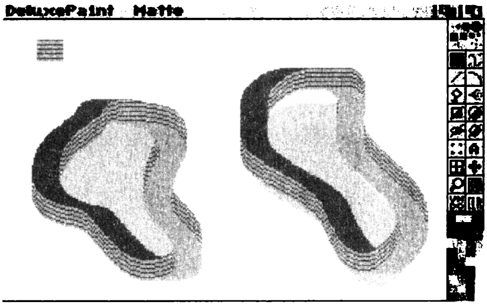


Figure 8.2 Two outlined shapes using a custom brush — one with the handle centred and one with the handle offset from the brush

Right-clicking on the Filled Freehand Shape tool displays the Fill Type requester. From here you can set the fill type for all filled shapes. See *Fill Tool* for an explanation of the options in this requester.

Straight Line Tool

Keyboard Equivalent: v — mnemonic — vector.
V — Spacing requester

Paints a straight line in any direction. The width of the line is determined by the current built-in (or custom) brush. To paint a line:

- Select the Straight Line tool, and position the cursor where you want the line to begin.

- Use the left mouse button to paint with the foreground colour, or the right mouse button to paint with the background colour.
- Drag in any direction to create a line.

⇧ Holding down the Shift key while painting a straight line constrains the line to be either horizontal or vertical, depending on the direction you move the cursor immediately after pressing Shift.

Ctrl Holding down the *Ctrl* key as you paint a straight line, causes the line to leave "traces" as you paint.

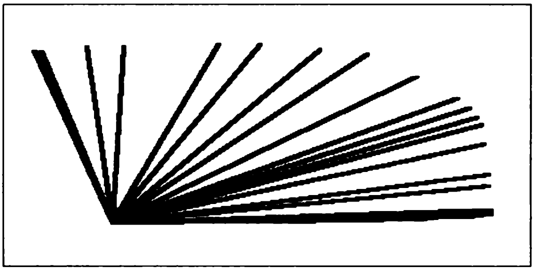
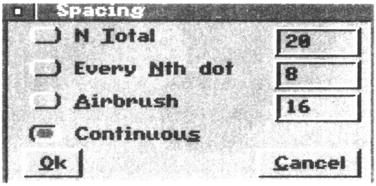


FIGURE 8.3 TRACES DRAWN WITH STRAIGHT LINE TOOL

Right-clicking the Straight Line tool displays the Spacing requester. The Spacing requester lets you specify the space between the paint "splats" deposited by the brush. Click to choose any of the four options in the requester.



Spacing

☐ N Total 20

☐ Every Nth dot 8

☐ Airbrush 16

☑ Continuous

FIGURE 8.4 THE SPACING REQUESTER

N Total

Defines the total number of "splats" that will occur along the line. You can define the number of "splats" by clicking the edit box, backspacing or deleting over the existing value, and typing in the new value. This setting is especially useful for ensuring that when animpainting over a series of frames you get exactly the number of brush stamps you need.

Every Nth dot

Spacing sets the number of pixels between each "splat" of the brush. This lets you space your brush splats accurately.

Airbrush

Paints using the Airbrush tool along the path defined by any tool affected by the Spacing requester. The number to the right of the button sets the number of airbrush sprays to be applied at each pixel along the path. This creates a fuzzy line or shape. You can use this feature with the painting modes from the Modes menu to create interesting effects. For example, using Smear with the Airbrush spacing can create interesting textured effects on a coloured background. This option can only be used with the "splatter" Old Style airbrush, not the Standard airbrush.

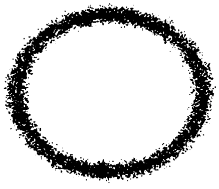


FIGURE 8.5 CIRCLE PAINTED USING AIRBRUSH SPACING AND THE COLOUR PAINTING MODE

Continuous

This spacing paints an unbroken path with no space between pixels. Continuous is the default setting.

Curve Tool

Keyboard Equivalent: q — mnemonic — qurve

Use the Curve tool to draw an arc between two points. The width of the line is determined by the current built-in (or custom) brush. The Curve works like the Straight Line tool, except that the line remains attached to your cursor, so you can specify the third point in the arc.

- Select the Curve tool, and position the cursor where you want the curve to begin.
- Drag to where you want the curve to end, and release the mouse button.
- Move the mouse in any direction to form the arc shape you want, and click.

⇧

Holding down the Shift key while painting with the Curve tool, constrains the tool to move either horizontally or vertically as you paint the initial line, depending on the direction you move the cursor immediately after pressing Shift. This is useful if you want the ends of your curve to line up horizontally or vertically.

Ctrl

Holding down the *Ctrl* key as you paint a curve, causes the curve to leave "traces" as you paint.

Right-clicking the Curve tool displays the Spacing requester (see *Straight Line Tool*, above, for an explanation of the options in this requester).

Fill Tool

Keyboard Equivalent: f — mnemonic — fill.
F — Fill Type requester

Use the Fill tool to fill an enclosed area using the current settings in the Fill Type requester. To use the tool:

- Move the paint can cursor over the *enclosed* area you want to fill, so that the tip of the spout is within the area.

◆ The *spout* is the one pixel opening at the bottom of the "splash."

- Click to fill the enclosed area.

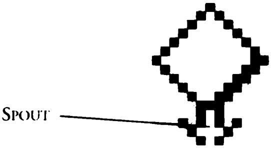


FIGURE 8.6 THE "SPOUT" OF THE FILL CURSOR

I

Holding down *i* when you click with the Fill cursor fills any irregular shape including gradients, outward to the background colour. In other words, the fill spreads outward until it reaches areas of the current background colour.

Alt

Holding down the Alt key when you click with the Fill cursor, animfills the shape. This means that the frames of your animation will flip, and the fill tool will fill outward on each frame from the point where you clicked. This option works with all of the Fill Types except the gradient fills that use the gradient direction line to define the gradient.

Right-clicking the Fill tool displays the Fill Type requester. The options in the requester are explained in the following paragraphs. When you return to the painting screen after choosing a fill type, the current gradient (or pattern, if Pattern or Perspective is selected) and its orientation are shown in the Colour Fill box in the Title Bar (see *User Feedback in Title Bar,* later in this chapter).

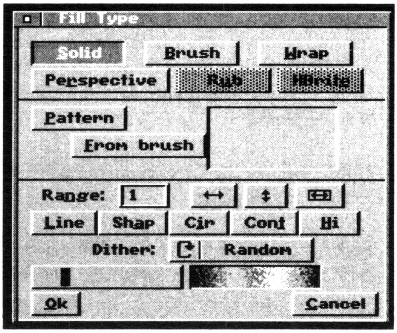


FIGURE 8.7 THE FILL TYPE REQUESTER

olid	Fills with the current colour. If you paint or fill your shape using the left button, the shape is filled with the foreground colour. If you paint or fill your shape using the right mouse button, it is filled with the background colour. This is the default mode.
Brush	Fills with one image of the current custom brush and sizes it to fit the filled area. See Figure 8.8.
Vrap	Fills with one image of the current custom brush and adjusts it to the horizontal and vertical shape of the filled area. This gives the illusion of wrapping the brush around a 3D solid. The effect is most pronounced if you use it to fill a shape that is very different from the shape of the custom brush. See Figure 8.8.

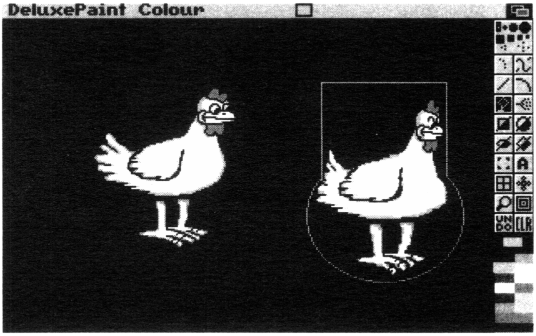


FIGURE 8.8 BRUSH AND WRAP FILLS

erspective	Fills with a pattern of the current brush in the current perspective setting (see **Perspective** under the Effect menu).
ub	Fills using Rubthru mode, where the picture on the spare page is rubbed through to the area to be filled. The current Translucency setting determines how much of the picture is rubbed through (100% translucency equals 0% of the image being rubbed through). This option is ghosted unless a spare page is available.
Hbrite	Fills using the Hbrite painting mode. In effect, this is a special form of tinting that only works if you are working in a Halfbrite screen mode (see *HBrite* in the Mode menu, below). When you are not in a Halfbrite screen mode, this option is ghosted in the requester. Drawing with the right mouse button over Halfbrite areas reverts them to their full colour counterparts.
attern	Fills with a pattern made from a brush. To use this option, you must first click the *From Brush* button to create a pattern of the current brush. This pattern remains the current fill pattern until you click From Brush again to create a new pattern from your new custom brush.
Range	Fills an enclosed object with a spread of colours (a gradient, see *Gradients*, below) from the selected range. Type in a number from 1–8 to specify the range you want to use. Click to select one of the fill options, which specify

the direction and type of the gradient fill. You can only use one fill option at a time.

Horizontal paints the gradient horizontally.

Vertical paints the gradient vertically with an even distribution.

Horizontal Line paints the gradient one line at a time and adjusts the gradient on each line so that it follows the contours of the shape being filled.

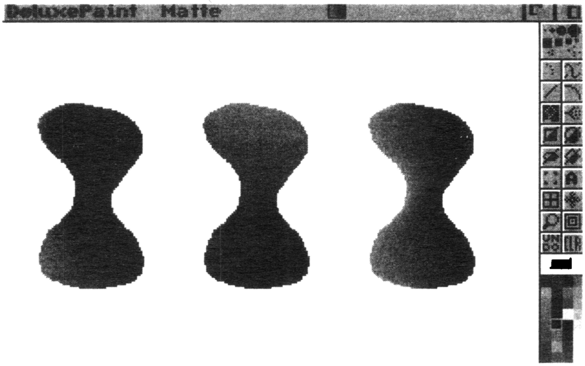


FIGURE 8.9 VERTICAL, HORIZONTAL, AND HORIZONTAL LINE GRADIENT FILLS

Gradients

DeluxePaint supports two types of gradients: Linear and Radial. A Linear gradient fills an object in one direction (in a line), and can either take the object's shape into account, or ignore it. A Radial gradient fills an object in all directions (radially) from the point where you click, until it reaches the boundaries of the object. Like Linear gradients, a Radial gradient can either take the object's shape into account, or ignore it.

Linear Gradients

The linear gradients are *Line* and *Shap(ed).* When you fill an object with either of these options, a gradient directional line stretches from the centre of the object to the cursor. Use this line to tell DeluxePaint the direction in which to fill the shape with the gradient. For example, if you move the directional line to the top of your shape and click, DeluxePaint fills your shape with the selected gradient from top to bottom. The first colour in the gradient (in the far left position in the range) appears at the bottom of the shape.

Line fills the object with a uniform linear gradient, ignoring the shape of the object.

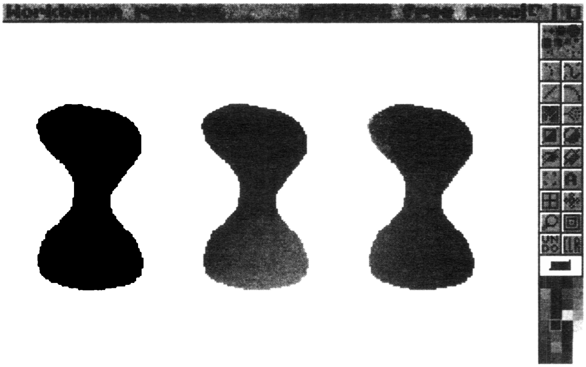


FIGURE 8.10 FILLING THE SAME SHAPE USING DIFFERENT GRADIENT DIRECTIONS

Shaped fills the object with a linear gradient, taking the shape of the object into account, so gradient lines tend to follow the object's contours.

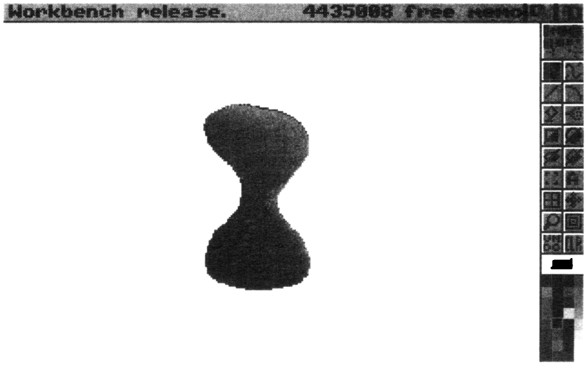


FIGURE 8.11 SHAPED GRADIENT

Radial Gradients
The radial gradients are *Cir(cular)*, *Cont(ours)*, and *(Hi)light*. When you select any of them and click on a shape, a gradient directional line stretches from the centre of the object you filled to the cursor. Move the cursor, which is attached to the directional line, to the spot where you want the gradient to begin and click. DeluxePaint will fill your shape radially outward from the point where you clicked. Radial gradients are especially useful for drawing shadows and other consistent three dimensional lighting effects.

Circular fills the object with a circular (shaped) gradient radiating outward from the point where you click. Like the Straight linear fill, above, Circular does not take the shape of the object into account.

Contours fills the object with the gradient taking the shape of the object into account. This creates a contour effect, reminiscent of topographical maps.

Highlight is similar to Contours, but optimised to create a highlight effect Like Contours, the object is filled with its shape taken into account. See Figure 8.12 for a comparison between the two methods.

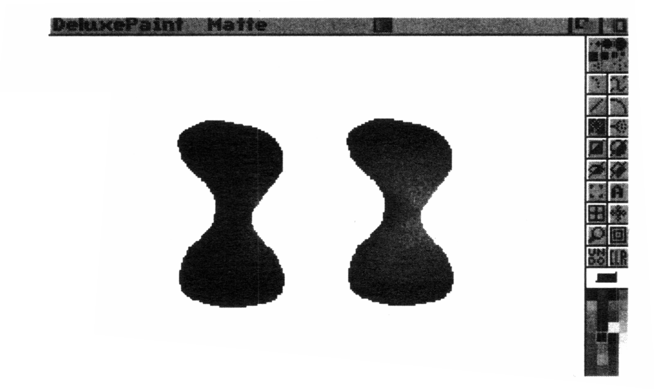


FIGURE 8.12 GRADIENT FILL, SHOWING THE DIFFERENCE BETWEEN CONTOURS AND HIGHLIGHT

Dither

DeluxePaint draws patterned gradients by dithering, which reduces the contrast between adjacent colours (without changing the colours themselves). Clicking the cycle button cycles through the following choices:

Random

When Random is selected, you can adjust the degree of colour mixing in the gradient fill. Drag the Dither slider left or right to decrease or increase the amount of dither. Setting the slider all the way to the left gives almost no mixing between shades. Moving the slider to the right increases the amount of mixing at the colour boundaries.

Pattern

When Pattern is selected, DeluxePaint creates a fixed pattern dither. This mode is useful for creating fills in modes with fewer colours.

Smooth

When Smooth is selected, DeluxePaint utilizes a Floyd Steinberg dithering technique that smoothes the contrast between the colours in your gradient as best as possible. This mode is most useful in HAM and 24-bit backing store modes, where more colours are available.

Airbrush Tool

Simulates the action of an airbrush by spraying with the current brush. Two styles of spray distribution are available: Old Style (random) and Standard.

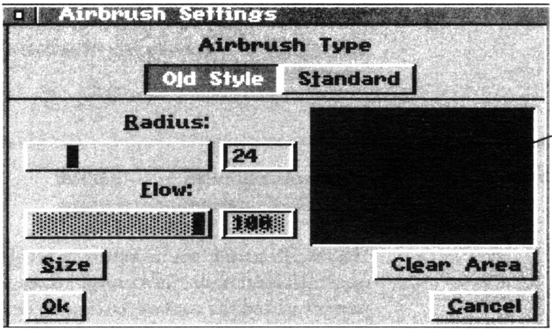
- Select the Airbrush tool. Position the cross-hair on the page and drag to paint.
- Click twice on the Airbrush tool to select Standard mode rather than Old Style (the default).

Holding down the Shift key while painting with the Airbrush tool, constrains the tool to move either horizontally or vertically, depending on the direction you move the cursor immediately after pressing Shift.

Press the + and - keys to increase or decrease the size of the airbrush when it is active.

Airbrush Settings requester

Keyboard Equivalent: Alt-A — open requester
A — Cycle Airbrush Type
Right-clicking the Airbrush icon displays the Airbrush Settings requester. This requester lets you select the type of airbrush and radius and flow parameters.



Radius: 24

Flow: 100

TEST AREA — TRY OUT YOUR SETTINGS HERE

FIGURE 8.13 AIRBRUSH SETTINGS REQUESTER

Airbrush Type
Choose between Old Style or Standard. Old Style is the airbrush used in previous incarnations of DeluxePaint; pixels of the foreground colour are randomly sprayed within the radius settings of the airbrush. You can perform brush-stamp painting with the Old Style airbrush, but not in Standard mode.

In Standard mode, the program paints similar shades of the foreground colour to create a seamless, blending effect. Just like a real airbrush, paint builds opacity gradually as you continue to spray an area (the rate your colour becomes opaque is controlled with the Flow slider below). In Standard mode the colours you paint *with* are affected (tinted) by the colour you paint on. Note that only the four round brushes are available with a Standard airbrush; the square brushes are grayed out.

❖ To cycle between Old Style and Standard airbrush types without opening the Airbrush Settings requester, type A.

Radius
Use the slider or text gadget to set the airbrush radius from 1–100 pixels. The larger the number, the larger the sprayed area.

Flow
Changes the rate of paint opacity build up in Standard mode only — higher settings equate to faster opacity. Use the slider or text gadget to set a value from 1–100.

Size

This button the lets you resize the nozzle. After clicking the button, move the cursor onto the page and drag the mouse until the nozzle is the size you want, then release the mouse button.

Clear Area

Clear the test area, which is a window/view onto your page. Clearing this area doesn't affect the underlying image.

NOTE: Airbrushes are palette dependent. Therefore, if you paint with a Standard airbrush, but see nothing, you need more contrast between background and foreground colour.

Unfilled/Filled Rectangle

Keyboard Equivalent: r — unfilled.
R — filled; mnemonic— rectangle

Use the Rectangle tool to paint a rectangle shape using any brush. The upper left half of the tool paints a rectangle outline using the size of the current brush and the current settings of the Spacing requester. The lower right half of the tool paints a filled rectangle using the current settings of the Fill Type requester.

- Select the Rectangle tool, and position the cursor on the page where you want the rectangle to begin.
- Drag the cursor diagonally to form a rectangle. When the rectangle is the size you want, release the mouse button.

Holding down the Shift key while painting with the Rectangle tool, constrains the rectangle to be the same number of pixels wide and high. You'll notice that this shape is not necessarily a square. This is because the pixels in the Amiga display are not square. To paint a square, turn on the **Be Square** option in the Prefs menu. When **Be Square** is on, DeluxePaint V adjusts the height and width of your square so that it appears square rather than being square in terms of pixel count.

Holding down the *Ctrl* key as you paint a rectangle, causes the rectangle to leave "traces" as you paint.

Holding down *i* as you click on the Filled Rectangle tool causes the tool to paint shapes that are filled and then outlined with the current brush using the settings of the Spacing requester. (See *Freehand Shape Tool* for more information.)

Right-clicking on the Unfilled Rectangle tool displays the Spacing requester. Use this requester to set the spacing between "splats" in the sides of your rectangle. (See *Straight Line Tool*, above.)

Right-clicking on the Filled Rectangle tool displays the Fill Type requester. Use this requester to set the type of fill you want in your rectangle. See *Fill Tool* for an explanation of the options in this requester.

Unfilled/Filled Circle

Keyboard Equivalent: c — unfilled
C — filled; mnemonic — circle

Use the Circle tool to paint circles using any brush. The upper left half of the tool paints a circle outline using the current brush and the current settings of the Spacing requester. The lower right half of the tool paints a filled circle using the current settings of the Fill Type Requester.

- Select the Circle tool, and position the cursor on the page where you want the centre of the circle.
- Drag the cursor in any direction to form the circle. When the circle is the size you want, release the mouse button.

The circles that DeluxePaint V paints may not appear perfectly circular. Circles are painted to be the same number of pixels high as they are wide. The circles do not appear perfectly circular because the pixels of the Amiga display are not square. If you want your circles to appear circular, turn on the **Be Square** option in the Prefs menu (see *Prefs Menu*, below).

Ctrl

Holding down the *Ctrl* key as you paint a circle, causes the circle to leave "traces" as you paint.

i

Holding down *i* as you click on the Filled Circle tool causes the tool to paint shapes that are filled and then outlined with the current brush using the settings of the Spacing requester. (See *Freehand Shape Tool* for more information).

Right-clicking on the Unfilled Circle tool displays the Spacing requester. Use this requester to set the spacing between "splats" in the sides of your circle. (See *Straight Line Tool*, above.)

Right-clicking on the Filled Circle tool displays the Fill Type requester. Use this requester to set the type of fill you want in your circle. See *Fill Tool* for an explanation of the options in this requester.

Unfilled/Filled Ellipse

Keyboard Equivalent: e — unfilled
E — filled; mnemonic — ellipse

Use the Ellipse tool to paint an ellipse. The width and shape of the line is determined by the current brush. The upper left half of the tool paints an ellipse outline using the current settings of the Spacing requester. The lower right half of the tool paints a filled ellipse using the current setting of the Fill Type requester.

- Select the Ellipse tool. Position the cursor where you want the centre of the ellipse to be and click.
- Move the cursor in any direction to form the shape you want.
- Drag the mouse in a circular motion to rotate the ellipse. The degree of rotation is shown in the menu bar.

- When the ellipse is positioned in the orientation you want, release the mouse button.

Holding down the Ctrl key as you paint an ellipse causes the ellipse to leave "traces" as you paint.

Holding down `i` as you click on the Filled Ellipse tool causes the tool to paint shapes that are filled and then outlined with the current brush using the settings of the Spacing requester. (See *Freehand Shape Tool* for more information.)

Right-clicking on the Unfilled Ellipse tool displays the Spacing requester. Use this requester to set the spacing between "splats" in the sides of your ellipse. (See *Straight Line Tool*, above.)

Right-clicking on the Filled Ellipse tool displays the Fill Type requester. Use this requester to set the type of fill you want in your ellipse. See *Fill Tool* for an explanation of the options in this requester.

Unfilled/Filled Polygon

Keyboard Equivalent: w — polygon; W — filled polygon

Use the Polygon tool to paint a polygon shape using any brush. The upper left half of the tool paints a polygon outline using the current settings of the Spacing requester. The lower right half of the tool paints a filled polygon using the current settings of the Fill Type requester.

- Select the Polygon tool, and position the cursor where you want one of the corners of the polygon.
- Click and then move the mouse in any direction to pull out a side of the polygon.
- Click to tack down each corner of the polygon. Clicking on the Polygon's point of origin completes it.

❖ You can complete a polygon without having to search for the point of origin by pressing the *space bar.* This automatically completes the polygon by connecting your last corner with the origin. However, if you're using the Unfilled Polygon tool, pressing the *space bar* will not complete the polygon. You'll need to connect the last corner with the point of origin yourself.

Holding down the Ctrl key as you paint a polygon, causes the polygon sides to leave "traces" as you paint.

Holding down `i` as you click on the Filled Polygon tool causes the tool to paint shapes that are filled and then outlined with the current brush using the settings of the Spacing requester. (See *Freehand Shape Tool* for more information.)

Right-clicking on the Unfilled Polygon tool displays the Spacing requester. Use this requester to set the spacing between "splats" in the sides of your polygon. (See *Straight Line Tool*, above).

Right-clicking on the Filled Polygon tool displays the Fill Type requester. Use this requester to set the type of fill you want in your polygon. See *Fill Tool* for an explanation of the options in this requester.

Brush Selector

Keyboard Equivalent: b — new brush, cycle through pickup modes; B —previous brush; mnemonic — brush

Use the Brush Selector to create a custom brush from any image on the page, or to recall your most recent custom brush.

To select a *rectangular* brush:

- Select the Brush Selector, and move the cursor to the page, where it becomes a large cross-hair.
- Drag diagonally to enclose the area you want to use as a brush. Release the mouse button to select it.

To select a *polygonal* brush:

- Double-click the Brush Selector to select it. The Brush Selector icon now looks like the Polygon tool. In this mode you can select an area to use as a brush in both polygonal and freehand modes.

  Polygon
  You can now surround the area you want to pick up as a brush as though you were drawing with the Polygon tool. As with the Polygon tool, pressing the *space bar* completes the brush selection automatically.

  Freehand
  If you hold down the left mouse button, you can draw in freehand mode to select the area you want to pick up as a brush. As in Polygon mode, pressing the space bar completes the brush selection automatically. You can also combine straight line clicking and freehand drawing to pick up a brush area.

To select a *magic pickup* brush:

- Triple-click the Brush Selector to select it. The Brush Selector icon now looks like a magic wand.

  Clicking the left mouse button picks up the entire area contiguous with the selected pixel (i.e., the contiguous shape connected to the pixel without being broken by the background colour). For instance, if you click in the middle of a filled circle, the entire circle is picked up as a brush.

NOTE If the selected colour is the same as the background colour, the program will pick up a 1 pixel transparent brush.

The Magic Pickup tool provides a quick way to pick up irregular shapes in one simple action.

Ctrl

Holding down the Ctrl key while selecting with the magic pickup selects only the contiguous area the same colour as the selected pixel. If the pixel is the same colour as the brush's transparency colour, the Magic Pickup tool will pick up a completely transparent brush, the bounds of which match the shape of the contiguous background-coloured pixels.

Left vs. Right Button

❖ Using the left mouse button to pick up a brush simply copies the selected area as a brush. Using the right button to select the brush cuts the selected area from the page to make the brush, and replaces the area with the current background colour.

When you pick up a brush, any colours that match the current background colour are transparent. If you have **AutoTransp** turned on in the Prefs menu, this additional rule applies: if all corners of the brush are of the same colour, that colour becomes transparent, regardless of whether it is the background colour. (See **AutoTransp** in the Prefs menu).

You can retrieve your most recent custom brush or AnimBrush by right-clicking the Brush Selector or pressing Shift-b.

⇧

Holding down the Shift key while selecting a brush with the rectangular Brush Selector will constrain the brush to be a square. This means that it will be the same number of pixels high as it is wide. Because the pixels of the Amiga display are not square, your brush may not appear square. If you want the brush to appear square, turn on **Be Square** in the Prefs menu before you select the brush.

Text

Keyboard Equivalent: t — mnemonic — text
T — Choose Font requester

Use the Text tool to add text to your picture.

- Select the Text tool, and move the cursor to the page.
- Click to place the text cursor. Type on the keyboard to enter text in the current foreground colour.

The text will automatically wrap around the right edge of the page and restart below the original cursor position. If your page size is larger than the screen, the page scrolls as you type off the edge of the screen. The text tool does not automatically word-wrap like a word processor.

You can use the Backspace key to erase text, and the Return key to begin a new line. To exit text mode, press Esc or click a painting tool.

❖ You cannot backspace over typed characters if the screen scrolls.

Right-clicking the Text Tool displays the Choose Font requester. Use this requester to choose fonts, sizes, and styles for your text. DeluxePaint V uses the standard Amiga ASL font requester. For information about how this requester operates, consult your system's user manual.

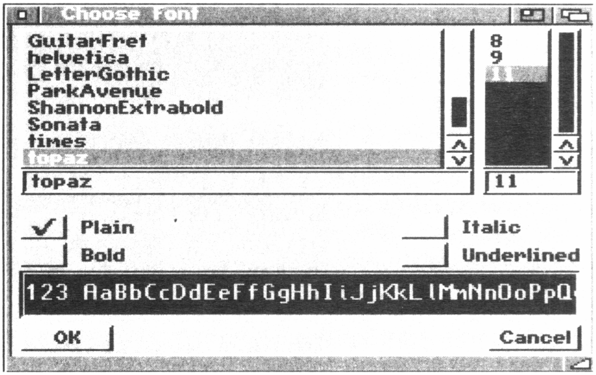


FIGURE 8.14 THE CHOOSE FONT REQUESTER

The scrolling font list displays the fonts that are available in the FONTS: directory. To choose a font, click on its name.

Choose a size for the font by clicking on the up and down arrows next to the size edit box. The scrolling list of sizes is restricted to the currently available sizes for the font that you have chosen. To choose a font size that is not available from the menu, type the point size in the size edit field.

Choose a style for the font by clicking on the Bold, Italic, and Underline check boxes. You can use these styles in any combination. Clicking an active (checked) button turns it off.

The display box under the font gadgets shows a sample of the selected font at its current point size.

Some fonts are CAPS only fonts, so if you are typing and all you see is an outline, turn on the Caps Lock key and try again.

FONT TIPS To Load and Assign Fonts from other Disks or Directories:

1. Make sure that you know the correct disk name or storage device name and/or the full path name of the fonts location. For example, say you have some video fonts stored on a disk called EXTRAFONTS in a drawer called FORVIDEO, then in the Drawer field of the **Font Dir...** requester in the Prefs menu you would type `EXTRAFONTS:FORVIDEO` and press the Return key or simply choose it from the file list. Similarly, if the fonts were stored on a hard drive partition called dh0 in a subdrawer called FONTS1 under a drawer called PAINT, then you would select or type `dh0:PAINT/FONTS1` to access them. Note that changing the font directory affects your system globally, not just in DeluxePaint.

2. If you have a hard drive and keep your fonts in several drawers or in drawers a couple of levels deep, you may want to add assigns to your existing FONTS: assign so that you can access your font collection quickly in the Font requester. Please consult your Amiga owners manu-

al or Amiga DOS manual to learn how to properly use the Assign command before you experiment with this. Following is an example of an Assign you can use to access the two ColourFonts included on the Media disk. The assign to access the fonts would be:

```
ASSIGN FONTS: dh0:DpaintV/Karafonts Add
```

After this Assign has been executed, the Karafonts subdirectory automatically is added to your existing FONTS: Assign. When you reopen the Choose Font requester, the new fonts are listed. (If they aren't listed, choose **Rescan Disk** from the Choose Font requester's Control menu.)

This example can be used widely for other font drawers as well. In the LOAD and SAVE requesters throughout the program Assigns can also be quite useful for saving and loading Pictures, Brushes, AnimBrushes, and Animations to long path names.

3. Please note that not all font sets have complete attributes, some fonts may not be able to be Italicised or Underlined; most fonts should be able to be set to Bold.

4. DeluxePaint V is compatible with most Standard Amiga Fonts, and can also load ColourFonts of up to 16 colours. Your Amiga dealer, local Amiga Users Group, or Amiga magazines are good sources for obtaining Public Domain fonts or for Purchasing additional commercial fonts like the KaraFonts included with DeluxePaint V.

Grid

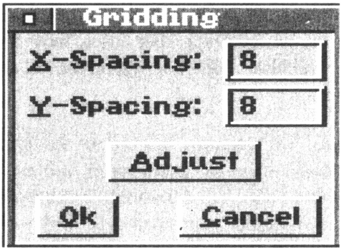
■ **Keyboard Equivalents: g — grid on/off;**
G — grid on and use brush handle location as a grid point;
mnemonic— grid

The Grid constrains some of the painting tools so that they paint only on the coordinates of a grid. If you press G to turn the grid on while using a brush, the grid will use the current brush handle position as one of its grid points.

The tools affected by the grid are:

Dotted Freehand
Straight Line
Rectangle
Circle
Ellipse
Brush Selector
Text

Right-clicking the Grid icon displays the Gridding requester. Use this requester to adjust the x and y spacing of the grid.


X-Spacing: 8

Y-Spacing: 8

FIGURE 8.15 THE GRIDDING REQUESTER

You can specify the grid values in pixels by deleting or backspacing over the existing values and typing in the new ones. Alternatively, you can click Adjust, which lets you visually place and adjust the grid cursor on the work area. The upper left corner of the adjustable grid is anchored as you drag the lower right corner. Release the mouse button to complete the adjustment.

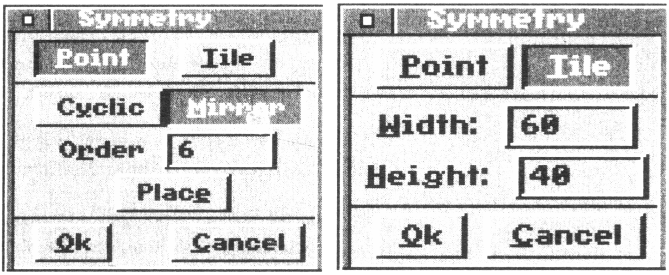
Right-clicking the Grid tool while you are in Perspective mode displays the Perspective Settings requester. See **Perspective>Settings** under the Effect menu.

Symmetry

Keyboard Equivalent: /

The Symmetry tool helps you paint symmetrical patterns around a central point or based on a tiling scheme. Symmetry works with all tools except Text and Brush Selector.

Right-clicking the Symmetry tool displays the Symmetry requester. Use this requester to choose between the two symmetry modes (Point and Tile) and to set parameters for each of the modes.


Order 6

Width: 60

Height: 40

FIGURE 8.16 THE SYMMETRY REQUESTER IN BOTH POINT AND TILE SETTINGS

Point Symmetry

Works around a central symmetry point in either Mirror (mirror image duplication of each point) or Cyclic (direct duplication at each symmetry point). In Point Symmetry you can select the number of symmetry points by using the Order edit box. You can also set the location of the symmetry centre by clicking Place and then the point on the screen where you want the centre of symmetry to be.

Place

Lets you position the central point of your symmetrical pattern. To reposition the central point, click Place, move the large cross-hair to the new location, and click. Subsequent symmetrical drawing will be centred on the new location.

Tile Symmetry

Creates "tile" patterns. You can set the horizontal and vertical dimensions (in pixels) of the tile in the width and height edit boxes (Tile Symmetry requester only). Tile is useful in creating fill patterns; once you've created your symmetrical pattern, set the Grid to the same spacing as the tiles to pick up exactly one tile as a brush. Tile lets you create an entire pattern just by drawing one of its elements, and is an ideal tool for textile designers.

❖ Because Tile Symmetry gives immediate feedback as you draw, it replaces the picture beneath each of the tiles in the symmetry. This will effectively destroy any picture that was on the screen before you turned on Tile Symmetry.

If you want to use Tile Symmetry to paint over an existing picture, choose **Background>Fix** from the Effect menu before you turn on Tile Symmetry. This will protect your existing picture from any inadvertent alteration.

Magnify

Keyboard Equivalent: m — mnemonic — magnify

The Magnify tool divides the screen into two parts and displays the right-hand side in magnification. This tool is especially useful for detail work. When you are in Magnify mode, you can use any other tool on either side of the screen.

- Select the Magnify tool. Position the Magnify box over the part of the image you want to enlarge and click with either button.

This divides the screen into two parts, with the right part magnified. You can scroll the magnification window using the arrow keys or the **n** key, which centres the area under the cursor.

To change the magnification scale click the Zoom icon (beside the Magnify tool). Clicking Zoom enlarges the magnified area; right-clicking shrinks it.

❖ You can set the Zoom level before you magnify an area. Changing the Zoom setting will change the size of the rectangle attached to your cursor when you are in the process of magnifying an area.

- To return to normal display mode, click the Magnify tool again.

The Magnify tool is especially useful for detailed work. You can use any other tool on either side of the screen in Magnify mode.

Zoom

Keyboard Equivalent: > — enlarge; < — shrink

Changes the scale in Magnify Mode (see *Magnify Tool*, above). Click the Zoom tool to enlarge the image; right-click to shrink the image.

Undo

Keyboard Equivalent: u — mnemonic — undo

Reverses the last painting action (including UNDO) as long as there has not been an intervening mouse click or a refresh of the screen such as that caused by pressing F9 or F10 to hide or show the menu and toolbox, bringing up any requesters or control panels through the keyboard or menu, or scrolling the screen.

WARNING You must type u to undo when painting without the toolbar.

CLR

Keyboard Equivalent: K — clear current screen or activate clear frame requester when there is an animation — mnemonic — Klear

Clears (erases) the current screen to the current background colour. If you have multiple frames, right-click on CLR to bring up an Options requester where you can select which frames you want to clear.

Colour Indicator

Indicates the current foreground and background colours.

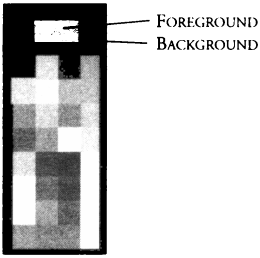


FIGURE 8.17 THE COLOUR INDICATOR

Clicking the Colour Indicator (or pressing the comma "," from the keyboard) selects the eye dropper cursor. This lets you select a new foreground or background colour by clicking a colour on-screen. Click the on-screen colour to select a new foreground colour, or right-click to select a new background colour.

Right-clicking the Colour Indicator displays the Colour Mixer. Use the Mixer to arrange, modify, and mix colours for your palette.

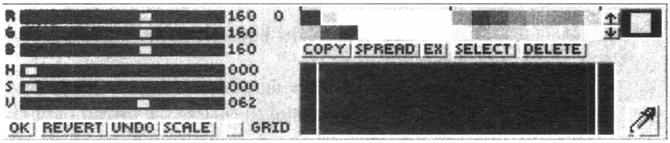


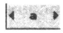
FIGURE 8. 18 COLOUR MIXER

DeluxePaint V lets you modify colours with either the RGB or the HSV colour mixing systems. See *Palette* under the Colour Menu, below for a detailed description of the Mixer.

Palette Area

Clicking a colour in the palette selects that colour. Click to select a new foreground colour and right-click to select a new background colour.

You can scroll through the colours in the palette to select a foreground colour by pressing the [and] keys on the keyboard. Shift-[and Shift-] to scroll through and select a background colour.



In colour modes greater than 64 colours an indicator appears below the palette to show which area of the Colour Set you are viewing. Click the arrows to move forward or backward. Shift-click to move to the beginning or end.

To *change* the colours in your palette, use the **Palette** and/or **Colour Set** options from the Colour menu.

Menus

DeluxePaint menus work just like standard Amiga menus. In DeluxePaint V, the file requesters (Load, Save, etc.) follow standard Amiga ASL conventions.

- Point to the Title Bar and press the right mouse button to display the Menu Bar.
- Point to a menu name to open that menu.
- Drag the pointer down to one of the menu options, and release the mouse button to select that option.
- In a file requester, press F1 to toggle the Options panel on/off. The Options panel provides information about the selected file and in some cases, file loading or saving options.
- File requesters have a Control menu that is available when the requester is open. The Control menu options are:

  Last Name and Next Name move up and down through the file list. Restore recalls the list and text gadget contents that were displayed when the requester was opened. The Parent, Volumes, OK, and Cancel menu items work just like the corresponding gadgets in the requester.

Delete deletes the file currently selected in the requester. A requester appears, requiring confirmation before the file is actually deleted. Select OK to delete the file or Cancel to return to the requester without deleting the file.

Some menu options have submenus indicated by >> to the right of the option. You can drag the highlight down to the option to display the submenu, then drag the highlight to the right and down again to select an option from the submenu.

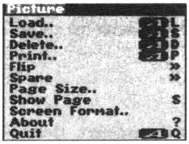
When we reference a submenu option in this manual, we use the following convention: "Choose menu option>submenu option from the X menu." So, for example, "choose **Spare>Swap** from the Picture menu," means display the Picture menu and highlight **Spare**. This exposes the Spare submenu. From the submenu highlight **Swap** and release the mouse button to activate your command.

In many cases, you can select a menu item by using its keyboard equivalent. A table of keyboard equivalents is included as ***Appendix B*** at the back of this manual.

Tip One keyboard equivalent deserves special mention: a, the "Again" key invokes your last menu command, whatever it may have been.

The menus are discussed in the order they are displayed, reading from left to right across the Menu Bar.

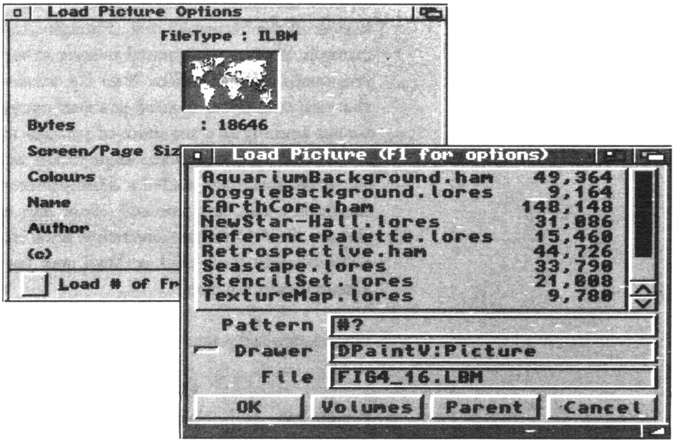
Picture Menu



The Picture menu lets you save, load, and print your pictures, as well as allowing you to make various global changes to the colour palette, screen resolution, and page format.

Load...

Keyboard Equivalent: Right-Amiga-l



FileType : ILBM

Bytes : 18646

Screen/Page Siz

Colours

Name

Author

(c)

```
AquariumBackground.ham      49,364
DoggieBackground.lores       9,164
EArthCore.ham              148,148
NewStar-Hall.lores          31,086
ReferencePalette.lores      15,460
Retrospective.ham           44,726
Seascape.lores              33,790
StencilSet.lores            21,008
TextureMap.lores             9,780
```

Pattern #?

Drawer DPaintV:Picture

File FIG4_16.LBM

FIGURE 8.19 LOAD PICTURE REQUESTER

The Load... command displays the standard Amiga file requester.

Clicking the Volumes gadget displays a list of available floppy disks, hard disk partitions, and assigned directories. Click on drawer names to list their contents. The file size, date, and time are displayed to the right of each filename. Use the sizing gadget to increase the window size if the window isn't wide enough to display this information.

Clicking the Parent action button moves you into the parent directory in which the current subdirectory resides. This may or may not be the root directory. If you click a drawer [subdirectory] name you will see all the files in that subdirectory.

If you swap disks while this requester is displayed, DeluxePaint reads the new disk's directory but does not display it until you click the Volumes button.

If there are more items in the directory than there is room in the window, you can scroll through the window by clicking the up and down arrow keys, or by dragging the scroll box up and down.

Note that devices, volumes, and directories are shown in the requester in white type, while files are shown in black type.

Assigns are denoted as Assign in the file window, and are shown in white type. Assigns are beneficial to users with large storage devices, such as hard disks, removable media, etc. You can create assigns to go directly into deep levels of subdirectories. By using an assign command, you can avoid having to move through multiple drawer levels to find an image file. Please consult your Amiga owners manual or an Amiga DOS manual for more information regarding this feature.

Pattern Edit Field

When used with the proper pattern matching parameters, this field lets you selectively view the files you want. You may have noticed that there are two types of character extension patterns that were used for files in the Picture drawer of the Examples disk, Filename.LoRes, and Filename.Ham. For example, if you only wanted to look at the filenames that end with .LoRes, you would type **#?.LoRes**. Your file window would show you only the files that end in .LoRes. A good practical example of how this could be used is for the loading of a sequence of pictures as an animation. If your sequence of Pictures were numbered sequentially or alphabetically, and started with the word Space and ended a .Ham extension then you type **Space#?.Ham** in the Pattern edit field and only those files would be viewable. Select the first file, set the # of frames (see below for a more complete explanation of the # of frames edit box), click on load, and your animation will be put together automatically for you.

The recognised pattern parameters for this edit field are:

?	Matches single characters.
#<pattern>	Matches occurrences of <pattern>.

^<pattern>	Matches only occurences of <pattern> at the beginning of the line.
~<pattern>	Filters out all entries that contain <pattern>.

Examples:

#?	Shows all files.
#?A#?	Shows all files whose name contains the letter A.
AN#?	Shows all files that begin with letters AN and end with a period followed by a 3 character extension.
#?.ANIM	Shows all files that end with an .ANIM extension.
^NTSC	Shows only files that start with NTSC.
~NTSC#?HALFBRITE	Filters out all NTSC and DBLNTSC Halfbrite modes.

Control menu

The Load Picture file requester has a Control menu with eight items. Last Name and Next Name move up and down through the file list. Restore recalls the list and text gadget contents that were displayed when the requester was opened. The Parent, Volumes, OK, and Cancel menu items work just like the corresponding gadgets in the requester.

Delete deletes the file currently selected in the requester. A requester appears, requiring confirmation before the file is actually deleted. Select OK to delete the file or Cancel to return to the requester without deleting the file.

Loading a File

Click the file you want to load, and then click the OK button to load the selected file. *Or, if you prefer, you can simply double-click on the filename to load the file.* Pictures load with all their attributes: palettes, stencils, and perspective information. Click Cancel if you don't want to load a file.

When you load a picture, the loaded picture replaces any existing picture. If you have multiple frames, the loaded picture replaces the current frame, and is remapped to the Anim frame's palette. A new palette isn't automatically loaded.

Load Picture Options panel

The Options panel displays attributes of the selected file, and lets you load multiple images as an animation.

Bytes: File size in bytes.
Screen/Page Size: Screen/Page dimensions in pixels.
Colours: Number of colours in the file.
Name: Name of the file or Name chunk if available.
Author: Author name (if available).
(c): Copyright information (if available).

Load # of Frames: Check this box to load multiple pictures at one time as frames of an animation. To select multiple files, Shift-click on files that you wish to be placed in the animation. The pictures must all be in the same format, and the files are loaded in the order that they're listed, not necessarily the order that they're selected. To create multiple frames from a single picture, select one file and enter a number in the text gadget to set the number of frames for the resulting animation. If you already have animation frames, those frames are discarded and DeluxePaint creates new frames as you load.

- If you want to *add* pictures to your animation without discarding it, you must load the pictures one at a time. DeluxePaint loads a single image in your current frame.

DeluxePaint loads the pictures starting with the picture you selected in the requester and continuing down the listing shown to load the number of frames you requested. If any of the files in the list is an animation, DeluxePaint loads the first frame of that animation as an animation frame in the new animation. The newly assembled animation uses the palette of the picture loaded, and adds additional palettes as needed.

Save...

Keyboard Equivalent: Right-Amiga- s
Displays the Save Picture ASL file requester. This requester works like the Load Picture requester, except that it saves the file to disk rather than loading it.

To save a picture from the requester, click on the disk name you want to save to. Click on the subdirectory you want to save your picture in. (Both the disk drive and directory you selected appear in the Drawer edit box, for example DF0:Examples). Click in the File edit box and type a name for your picture. Finally, click OK to save the file.

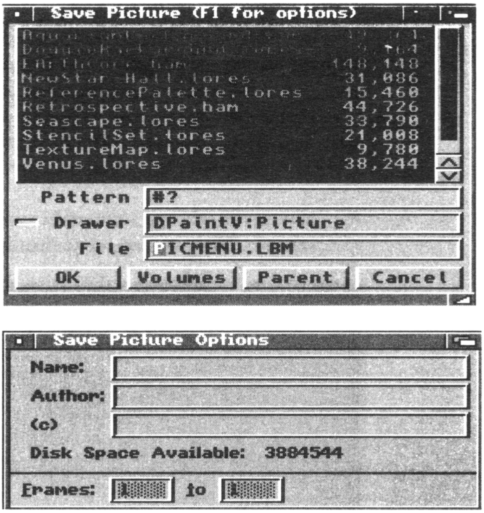
You can save in a particular subdirectory by clicking in the Drawer edit box and typing in the subdirectory name, or by clicking the subdirectory name directly from the file names displayed in the window.

When you type in either the Drawer or File edit boxes, you can erase the existing type by clicking at the end of the existing name and backspacing, or by clicking at the beginning of the name and Deleting. You can move over the text without deleting it by using the arrow keys.

TIP Typing Right-Amiga-X deletes the current line of text.

You can save a picture under an existing file name by clicking that file name in the file listing, or you can enter a new file name (up to 29 characters long) by clicking the File edit box and typing the name. Whenever you save a picture under an existing name, DeluxePaint displays a requester for you to confirm that you want to overwrite the existing file.

Pictures are saved and reloaded with all their attributes, such as palettes, stencils and perspective information. 24-bit pictures are not saved with any palette information. See the ***Appendix E: The 24-Bit Backing Store*** for more information.



NewStar-Hall.lores	31,086
ReferencePalette.lores	15,460
Retrospective.ham	44,726
Seascape.lores	33,798
StencilSet.lores	21,008
TextureMap.lores	9,780
Venus.lores	38,244

Pattern #?
Drawer DPaintV:Picture
File PICMENU.LBM

Name:
Author:
(c)
Disk Space Available: 3884544
Frames: 1 to 1

FIGURE 8.20 SAVE PICTURE REQUESTER

Save Picture Options panel
Press F1 to toggle the Options panel on/off.

Name: Enter the name of the picture image in this text box (this name can be different from the filename if you wish).
Author: Enter the name of the author of the image here.
(c): Enter copyright information in this text box.

Frames: Specify a frame range to save, if applicable. When you save more than one frame, each frame is saved as a separate picture, and a number is appended to the end of the filename. For example, if you enter 5 to 10 as the frames you want to save, frames 5–10 are saved as Filename005 through Filename 010.

Control menu
The Load Picture file requester has a Control menu with eight items. Last Name and Next Name move up and down through the file list. Restore recalls the list and text gadget contents that were displayed when the requester was opened. The Parent, Volumes, OK, and Cancel menu items work just like the corresponding gadgets in the requester. Keyboard shortcuts for the options are listed in the menu.

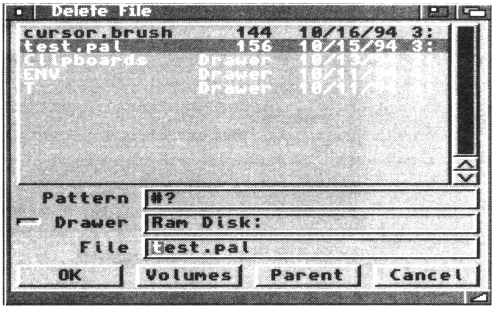
Delete deletes the file currently selected in the requester. A requester appears, requiring confirmation before the file is actually deleted. Select OK to delete the file or Cancel to return to the requester without deleting the file.

The Pattern edit box and Volumes gadget work just as in the Load Picture requester (see *Load*, above).

Delete ...

Keyboard Equivalent: Right-Amiga - d
Displays ASL Delete File requester, which lets you delete a file from the disk without leaving the program. This is especially useful if you find that your data disk is full and you need to delete a file before you can save your work. The Delete File requester works just like the Load and Save requesters described above. You can enter a file name by clicking that name in the requester window, or by typing the name directly into the File edit box.

❖ You can use this option to delete *any* kind of file on the disk, not just pictures. Thus, you can delete brushes, animations, etc.



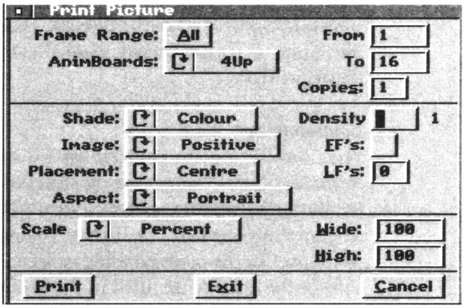
```
cursor.brush     144  10/16/94 3:
test.pal         156  10/15/94 3:
Clipboards    Drawer  10/13/
ENV           Drawer  10/11/
T             Drawer  10/11/
```

Pattern #?
Drawer Ram Disk:
File test.pal

FIGURE 8.21 DELETE FILE REQUESTER

Print...

Keyboard Equivalent: Right-Amiga - p
Displays the Print Picture requester. Before you start to print a picture, make sure you have selected the correct printer driver from **Preferences**, and that your printer is connected and turned on. See your Amiga Users Guide for information on Printer Preferences.



Frame Range: All
AnimBoards: 4Up
From 1
To 16
Copies: 1
Shade: Colour
Density 1
Image: Positive
EF's:
Placement: Centre
LF's: 0
Aspect: Portrait
Scale Percent
Wide: 100
High: 100

FIGURE 8.22 PRINT PICTURE REQUESTER

The Print Picture requester provides the following options:

Frame Range: Click All to print all the frames (if applicable), or use the From and To text boxes to select a range of frames to be printed. This option is only available if an animation is loaded.

AnimBoards™: This cycle gadget can be used to print multiple frame animations on a single page by selecting 1Up, 2Up, 4Up, 6Up, 9Up, or 16Up storyboards. Note that 4, 9, and 16Up AnimBoards preserve the tiled picture aspect ratios best. This option is only available when an animation is loaded.

Copies: Specifies how many copies of the picture you want printed.

Shade: Cycle between B & W, Grey, or Colour to specify whether the printout will be in black and white, shades of grey, or colour. Make sure the setting is appropriate for your printer. If you are using a single-colour ribbon, click B & W. If you want to translate your image's colours into shades of grey, use the Grey setting. If you have a colour printer and wish to print in full colour, click Colour.

Density: Use the slider to set the print density.

Image: Specifies whether the printout will be a positive or negative image. Click to cycle between Positive and Negative.

FF: Lets you set whether or not you want the printer to move to the next sheet of paper before printing each image. This lets you easily print a single picture per sheet of paper.

Placement: Specifies whether the picture should be printed against the left margin of the page or centred on the page.

LF: Specifies the number of line feeds you want to insert after a picture is printed. This way you can easily print two pictures on the same page with a specified amount of space in between the pictures.

Aspect: Specifies the orientation of the picture on the paper, either Portrait, the default, or Landscape. Click to cycle between Portrait and Landscape.

Scale: Cycle between Dots Wide or Percent. When Dots Wide is selected, use the Wide and High text boxes to enter the height and width of the printout in printer pixels. Values of 0 for width or height will cause the aspect ratio limitations to be ignored and the printout will be be as large as the margins will allow. When Percent is selected, you can use the Wide and High text boxes to set the aspect ratio for height and width.

You can use the Percent feature to compensate for elongated squares and circles that result when you change screen formats. If you just want to shrink the picture while maintaining the same aspect ratio, change the Wide value and leave the High value at 0. To change either value, click the appropriate gadget, Backspace or Delete over the existing value, and type in the new one.

Cancel if don't want to print and don't want to save any new settings. Click **Exit** if you don't want to print, but want to save your settings to print later. Click **Print** to print the current picture, or once you start printing, you can stop at any time by pressing the Stop button that appears while printing is in progress.

Refer to your AmigaDOS documentation for information on how to set any print options not available in the Print Picture requester. Note that the Print Picture requester only affects printer options in DeluxePaint. To permanently change your system printer settings, use the Workbench Printer Preferences requester.

Flip >>

Flip lets you flip a picture about its X or Y axis. If you have multiple frames, you can flip one frame, a range of frames, or all frames of your animation. The submenu offers two ways to flip an image, horizontally or vertically.

Horiz

Flips the current picture about the horizontal or X axis.

Vert

Flips the current picture about the vertical or Y axis.

Spare >>

The Spare option presents a submenu with options for manipulating DeluxePaint's spare page. Note that the spare page now has its own unique colour palette.

Swap

Keyboard Equivalent: j
Conceals the current page and displays a second or "spare" page. This means you have two pages to work on. The concealed page is always the spare page.

When you first select the spare page, it is the same size as the main page. If you wish to use a larger page size on the spare page, you'll need to make the appropriate selection from the **Page Size** option (see below). Note, however, that you can increase the size of a page only if you have sufficient memory available. Note also that a spare page uses up memory, even if there is nothing on it.

Copy to Spare

Keyboard Equivalent: Ctrl-j
Copies the picture and palette on the current page to the spare page so you can experiment with your picture on the spare page without fear of losing anything. If you do not have sufficient memory for a spare page, save the image to disk if you wish to experiment with it. If you copy to the spare from a page that is larger than the spare, only the visible portion of the page is copied. If you copy to a spare which is larger than the screen, a copy is made to the spare at the location in the spare that was visible when you last viewed it.

Merge in front

Merges the spare page in front of the current page. When the spare page is brought forward, all pixels matching its current background colour will appear transparent, allowing images on the current page to show through. You must be viewing the page you want to merge to when you choose this option.

Merge in back

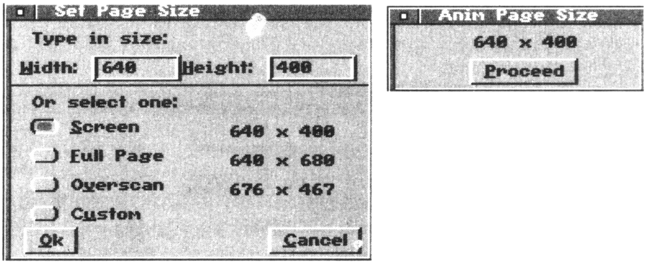
Merges the spare page in back of the current page. When the spare page is put behind the current one, all pixels which match the current page's background colour will appear transparent, allowing images on the spare page to show through. You must be viewing the page you want to merge to when you choose this option.

Delete this Page

If you no longer wish to have memory allocated for a second "spare" page, use this option to delete the current page (the one currently showing on the screen) and to deallocate the memory set aside for it. Be sure you have saved a copy of the picture you are deleting if you think you may need it later. When you select Delete this Page, DeluxePaint asks you to confirm the deletion, and then switches you to the other page.

Page Size...

Displays the Set Page Size requester. Select the page size (in pixels) you wish to work on. Screen is the normal Amiga display size for the selected resolution.



Set Page Size

Type in size:

Width: 640 Height: 400

Or select one:

● Screen 640 x 400

○ Full Page 640 x 680

○ Overscan 676 x 467

○ Custom

Anim Page Size

640 x 400

FIGURE 8. 23 SET PAGE SIZE REQUESTER

Full Page gives you a full page image (8 1/2 by 11 inches) on most printers. Overscan presents a full-screen display, which lets you create pictures that fill the entire screen. This is particularly useful if you wish to videotape your images. In order to paint on the edges of a full video screen, you need to scroll the image around using the cursor keys or the **n** key unless you set the screen format to Overscan (see Screen Format, below). Alternatively, you can view the entire screen by selecting **Show Page,** below.

Clicking one of the first three settings automatically sets the height and width in the corresponding edit boxes. You can also type in any other size you wish by selecting Custom and then clicking the appropriate edit field, Backspacing or Deleting over the existing value, and typing in the new size. Although DeluxePaint will recognise page sizes up to 1008 x 1024, you may need to reduce the number of colours in your palette to create a picture this large.

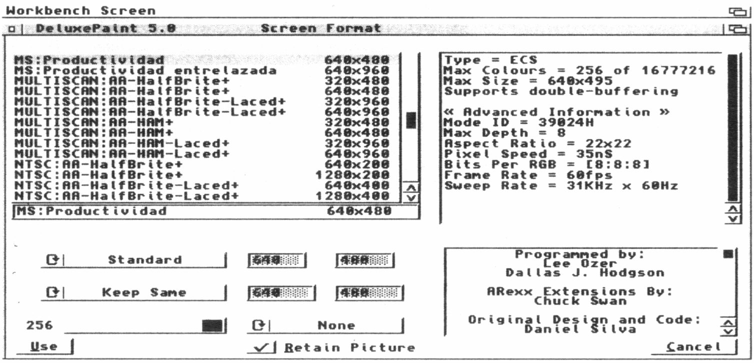
Show Page

Keyboard Equivalent: S
Hides the Toolbox and Title Bar, and displays the entire document, if necessary in a reduced format. For example, in 640 x 400 page size in Lo-Res, it shows only every other pixel. If the page is oversized (larger than the screen), you can move the rectangle to view a different area of the screen by holding down the left mouse button; dragging the rectangle to the area you want to view; and releasing the mouse button. You are returned to the current page with the area of the rectangle in view. Pressing any key returns you to the current page without repositioning the view.

For more exact positioning of the rectangle, you can move it with the arrow keys. The arrow keys move the rectangle one unit at a time. (A unit is the page size dimension divided by the screen size. So with 320x200 screen format with 640x400 page, the rectangle moves 2 pixels at a time.) Holding down the Alt key and pressing the arrow keys moves the rectangle in screen size increments.

Screen Format...

Displays the Screen Format requester. The items in this requester are arranged a little differently than in DeluxePaint IV, and some new options have been added. *Be sure to save a copy of your current screen before changing screen formats,* because once you have reduced the number of colours, the original colour information is lost. In addition, note that changing formats eliminates most items from memory, including the Font Directory.



```
Workbench Screen
DeluxePaint 5.0          Screen Format

MS:Productividad                    640x480   Type = ECS
MS:Productividad entrelazada        640x960   Max Colours = 256 of 16777216
MULTISCAN:AA-HalfBrite+             320x480   Max Size = 640x495
MULTISCAN:AA-HalfBrite+             640x480   Supports double-buffering
MULTISCAN:AA-HalfBrite-Laced+       320x960
MULTISCAN:AA-HalfBrite-Laced+       640x960   « Advanced Information »
MULTISCAN:AA-HAM+                   320x480   Mode ID = 39024H
MULTISCAN:AA-HAM+                   640x480   Max Depth = 8
MULTISCAN:AA-HAM-Laced+             320x960   Aspect Ratio = 22x22
MULTISCAN:AA-HAM-Laced+             640x960   Pixel Speed = 35nS
NTSC:AA-HalfBrite+                  640x200   Bits Per RGB = [8:8:8]
NTSC:AA-HalfBrite+                 1280x200   Frame Rate = 60fps
NTSC:AA-HalfBrite-Laced+            640x400   Sweep Rate = 31KHz x 60Hz
NTSC:AA-HalfBrite-Laced+           1280x400
MS:Productividad                    640x480

   Standard      640   400          Programmed by:
                                      Lee Ozer
                                   Dallas J. Hodgson
   Keep Same     640   400
                                   ARexx Extensions By:
                                      Chuck Swan
 256                None
                                   Original Design and Code:
                                      Daniel Silva
 Use           ✓ Retain Picture                        Cancel
```

Figure 8.24 Choose Screen Format requester

Choose Display Mode: Click on one of the available display modes to select that mode. The display modes that appear are dependent on what is in your Monitors drawer at boot up. DeluxePaint reads which monitors you have available for use and automatically makes their screen modes available in the Screen Format requester. Note: Your monitor must be capable of displaying the modes you have in your Monitors drawer. For example, a 1084 monitor isn't capable of displaying Multiscan modes.

In 640x200 modes pixels are tall and narrow compared to other screen formats. This means if you switch from a 320x200 mode to a 640x200 mode such as NTSC:Hires, objects will become flattened or elongated because of the different pixel shape. You can compensate for this by using the **Double Horiz** and **Double Vert** options from the Brush menu (see below).

- Screen Size: Click the button to cycle through the available sizes. The Custom option allows you to choose the size of the screen using the two text boxes (width, height). The maximum height and width of the screen is listed in the Max Size parameter in the Display Information window.

- Page Size: Select Screen to make the page size the same as the current screen size dimensions. Select Keep Same to retain the current page size for new documents. If the current page size is too small for the current screen dimensions, it is increased, but won't affect the image.

Example #1: **Screen** — If you start in 320 x 200 screen format and move to 640 x 400 format, your image will fill only one quarter of the screen. If you go from 640 x 400 to 320 x 200, you will only retain the upper left quarter of your image.

Example #2: **Keep Same** — If you start in 640 x 400 format and move to 320 x 200 format, you will retain the entire image but you will need to scroll the screen to see all of it.

Palette Size: This slider defaults to the maximum colours for the selected display mode, but can be set to a lower number if desired.

Backing Store: Cycle between None (default) or 24-bit RGB for using a backing store to enable 24-bit colour.

Retain Picture: Click this checkbox to retain the current picture (this is on by default).

Display Information: This box displays information for the selected display mode.

Credits: A listing of the people who created DeluxePaint V appears in this box. Use the scroll bar to scroll up and down through the listing.

Menus

Right click on the Menu Bar to reveal the four menus available when the Screen Format requester is displayed. Menu shortcuts for the menu options are listed in each menu.

Control: The Control menu provides another way to move through the list of display modes, as well as Use the selected mode or Cancel out of the requester. FirstMode and LastMode select the first and last display modes in the list respectively. NextMode and PrevMode select the next or previous display modes. Use and Cancel work like the Use and Cancel buttons in the requester.

Edit: Reset To Defaults restores the system default display mode. Restore Last Saved restores the display mode last saved as a tooltype. Save Settings saves the current display mode as a tooltype. The Default Pattern >> item allows you to Use or Define the default pattern for listing display modes. The DeluxePaint default pattern is '#?' (show all files), but you can Define any pattern you like to constrain the listing to your desired parameters.

Monitors: This menu lets you constrain the display mode listing to ALL monitor types or a specific monitor type (DOUBLENTSC, MULTISCAN, NTSC, or SUPER72).

Settings: The Display Names >> item lets you view the display modes by standard Monitor Name or by Mode ID. The History >> item displays a list of the last ten patterns you've entered, so you can use the menu to select a pattern you've set previously rather than typing in the pattern again. The patterns are maintained in memory only for your current DeluxePaint session; they are not saved when you exit the program.

HAM

The Hold and Modify display mode (HAM) uses either 64 colours for the 262,000+ AGA colours or 16 colour registers to display 4,096 colours on the screen at the same time. A HAM colour is formed by taking the RGB value of the preceding pixel on the screen, and substituting a new value for one of the RGB components.

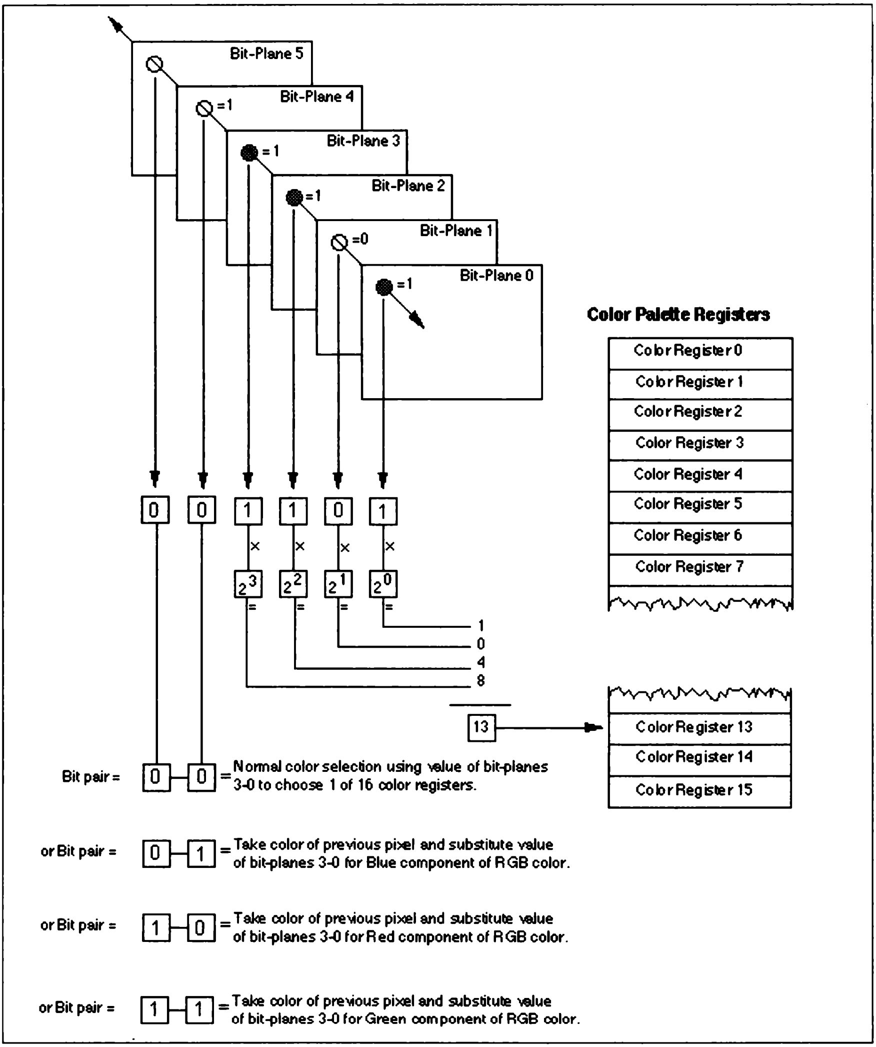

Bit-Plane 5
Bit-Plane 4
=1
Bit-Plane 3
=1
Bit-Plane 2
=1
Bit-Plane 1
=0
Bit-Plane 0
=1
Color Palette Registers
Color Register 0
Color Register 1
Color Register 2
Color Register 3
Color Register 4
Color Register 5
Color Register 6
Color Register 7
0 0 1 1 0 1
x x x x
2^3 2^2 2^1 2^0
= = = =
1
0
4
8
13
Color Register 13
Color Register 14
Color Register 15
Bit pair = 0 0 = Normal color selection using value of bit-planes 3-0 to choose 1 of 16 color registers.
or Bit pair = 0 1 = Take color of previous pixel and substitute value of bit-planes 3-0 for Blue component of RGB color.
or Bit pair = 1 0 = Take color of previous pixel and substitute value of bit-planes 3-0 for Red component of RGB color.
or Bit pair = 1 1 = Take color of previous pixel and substitute value of bit-planes 3-0 for Green component of RGB color.

Figure 8.25 Hold and Modify Pixel Colour Selection

- Because HAM colours are based on colour values of the preceding pixel, and only one colour value can be changed at a time, it may take three pixels to reach the colour you really wanted. In Figure 8.25 it takes three pixels to change black (R0, G0, B0) to white (R15, G15, B15). Note that this example assumes there are no intermediate colours in the normal colour registers. This gradual change from one colour to the next is sometimes referred to as "ramping" the colour, and appears on the screen to the left of HAM pixels. If you need fine details in your picture, you will want to use a colour from one of the sixteen colour registers, because those colours do not require ramping.

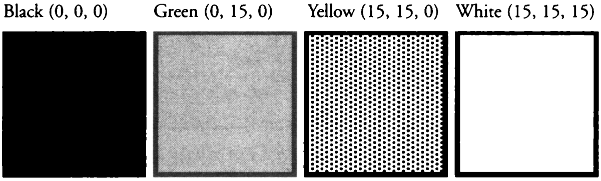


FIGURE 8.26 HAM COLOUR RAMPING

When you paint with a brush over an area made up of HAM pixels, you may see streaks of colour running to the right from the edge of the brush. This is a temporary effect called "fringing." When you paint the brush onto the picture, DeluxePaint corrects the fringing, but you may see the "ramping" effect where the program recreates the HAM colour to the right of your brush.

◀ a ▶

In HAM mode there is a selector button displayed under the palette on screen. Click on the arrows to move through the 16 sets (A through P) of colours available in your total colour set. The "a" group is your palette or base register colours; the other colours in the set are HAM colours.

Overscan

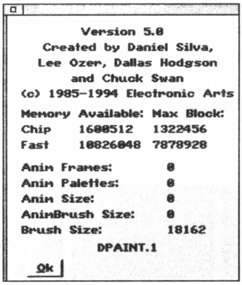
The system Overscan preferences are used by default. **Std** puts the screen into standard Overscan mode allowing you to view and edit your image in the border area around the normal viewable screen area. Notice that the dimensions of all four screen formats get larger. If the Toolbox or Title Bar are showing when you choose Overscan mode, the screen is Shifted down and to the left to make sure you can see the controls.

At **Max** setting the viewing area gets even larger. The new vertical and horizontal dimensions of the screen appear beside the screen formats.

If you need to adjust the position of your screen, you can do so by holding down Ctrl and using the cursor keys. This saves you the trouble of exiting the program to adjust your screen through Preferences.

About...

Keyboard Equivalent: ?
The About requester shows the program version number, the authors' names, the copyright notice, and information about the amount of available memory and the size of your brush, animation, or AnimBrush, and the number of palettes currently being used.



```
Version 5.0
Created by Daniel Silva,
Lee Ozer, Dallas Hodgson
and Chuck Swan
(c) 1985-1994 Electronic Arts
Memory Available: Max Block:
Chip     1600512   1322456
Fast     10826048  7878928
Anim Frames:          0
Anim Palettes:        0
Anim Size:            0
AnimBrush Size:       0
Brush Size:           18162
DPAINT.1
```

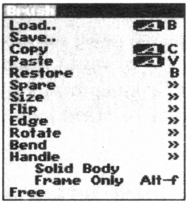
Figure 8.27 The About box

Quit

Keyboard Equivalent: Right-Amiga - q
Exits DeluxePaint.

Brush Menu

Load...



Keyboard Equivalent: Right-Amiga - b
Displays the Load Brush requester. This is identical in function to the Load Picture requester, except that you are loading brushes rather than pictures. When you load a brush that has a palette different from that of the current picture, the picture palette remains in place. Nonetheless, the brush palette information is loaded along with the brush; you can change to the brush's palette at any time by choosing **Palette>Use Brush Palette** from the Colour menu. If you wish to revert to the previous palette, use **Palette>Restore Palette** option.

The Load With Palette option in the Load Brush Options window automatically uses the brush's palette.

Save...

Displays the Save Brush requester. This requester is identical in function to the Save Picture requester (see **Save** in the *Picture Menu*, above). Brushes are saved with their palettes, which includes ranges and colour cycling information.

The Save with Mask option in the Save Brush Options window allows you to choose whether you want to save the brush with its transparency or not.

Copy

Keyboard Equivalent: Right-Amiga - c
Copy the current brush to the system clipboard. You must have a user-defined brush selected for this command to work. This is a good way to transfer bitmaps from one program to another.

Paste

Keyboard Equivalent: Right-Amiga - v
Paste the current contents of the system clipboard to a brush.

Restore

Keyboard Equivalent: B
Restores as the current brush the custom brush you last used, after you've used an AnimBrush, a built-in brush, or modified your custom brush with an option from the Brush menu. Restore does not reverse the effect of all brush manipulations in the Brush menu. Generally the options that cannot be reversed with Restore can be reversed by choosing the option again. For example, Restore does not reverse the **Flip>Horiz** option, but choosing **Flip>Horiz** again (with no intervening commands) returns your brush to its previous state.

❖ It's a good idea to save your custom brush, or stamp it down on the spare page if you want to do a lot of experimenting. This way you'll have your original brush to go back to.

Spare >>

The Spare options submenu has options for using and manipulating DeluxePaint's spare brush.

Brush->Spare

Keyboard Equivalent: Alt-n
Moves the current brush to the spare brush position (which is hidden). If your current brush is an AnimBrush, the current cel of the brush is copied to the spare brush position.

Brush<->Spare

Keyboard Equivalent: Alt-b
Swaps the current brush and the spare brush positions.

Morph->Spare...

Keyboard Equivalent: Alt-m
Lets you create a special AnimBrush that metamorphoses between the shape and colours of the current brush and the shape and colours of the spare brush. To use this option, you must first have a custom brush and a "spare" custom brush.

When you choose Metamorph, the Make AnimBrush requester appears. Enter the number of cels you want in the AnimBrush. Enter a number and click OK. DeluxePaint creates the AnimBrush automatically.

For best results, your custom brush and spare brush should be picked up with the same dimensions. This does not mean that the brush images must be the same size; but the area that you surrounded to pick up the brush images should be the same size.

The resulting first and last cels of the AnimBrush generally do not contain exactly the same images as your original custom brush and spare brush. Usually you will see some change in the colours of the first or last frames.

See the metamorphosis exercise in ***Chapter 7: Animation Effects*** for more information.

Size >>

The Size option lets you resize the current brush. The submenu presents the following options.

Stretch or Shrink

Keyboard Equivalent: Z
Lets you freely stretch the current custom brush in any direction to any size. To stretch the brush, drag it to the desired size. Select **Restore** from the Brush menu to negate the effect of the stretch.

Holding down the Shift key constrains the stretch operation so that your brush maintains the same aspect ratio (relative width and height)

- ❖ Stretching a brush uses a lot of memory; if you try to stretch a brush to a size bigger than the available memory can accommodate, the brush will snap back to its original size.

Halve

Keyboard Equivalent: h
Reduces the size of your brush by 50% in vertical and horizontal dimensions. For instance, a 20 X 20 brush is resized to 10 X 10.

Double

Keyboard Equivalent: H
Doubles the size of your brush in both dimensions, for a quadrupling of the total area. For instance, a 20 X 20 brush is resized to 40 X 40.

Double Horiz

Keyboard Equivalent: X
Doubles the size of your brush in the horizontal dimension. This option is useful for re-proportioning images that you created in Lo-Res and then moved to Med-Res (see **Screen Format** under the Picture menu).

Double Vert

Keyboard Equivalent: Y
Doubles the size of your brush in the vertical dimension. This option is useful for re-proportioning images that you created in Med-Res and then moved to Lo-Res (see **Screen Format** under the Picture menu).

- ❖ Doubling the size of a brush may require more memory than you have available. In that case, the resized brush may appear only as an outline.

Flip >>

Lets you flip a brush about its X or Y axis. When you Flip an AnimBrush, all frames of the animated brush will flip.

Horiz

Keyboard Equivalent: x
Flips the current custom brush about the horizontal or X axis.

Vert

Keyboard Equivalent: y
Flips the current custom brush about the vertical or Y axis.

Edge >>

Modifies a one pixel boundary around the current brush.

Outline

Keyboard Equivalent: o
Adds a one pixel boundary around the current custom brush using the current foreground colour. This is ideal for outlining text. To increase the thickness of the outline, one pixel at a time, select Outline repeatedly.

- ❖ Outlining in HAM mode with a HAM colour may supply different results. The boundary colour you get may be different from the foreground colour if one pixel is not sufficient to "ramp" to the HAM colour.

Trim

Keyboard Equivalent: O
Deletes a one pixel boundary around the current brush. You can trim repeatedly.

Rotate >>

Rotate the current custom brush in any of three ways.

90 Degrees

Keyboard Equivalent: z
Rotates the current brush clockwise 90 degrees.

Any Angle

Lets you rotate the current brush any number of degrees.

- ■ Choose **Rotate>Any Angle** from the Brush menu. Hold the left button down and drag the rectangular outline about its bottom left corner. Release the button at the desired orientation.

If you select this option more than once, your brush reverts to its original orientation before you rotate it again.

Shear

Gives you controlled distortion of the current brush. The top part of the brush is anchored, and you can drag the bottom of the brush in either direction.

Bend >>

Use this option to bend a brush horizontally or vertically.

Horiz

Lets you bend the current brush in a horizontal direction.

- ■ Choose **Bend>Horiz** from the Brush menu. Drag the brush outline left or right until it is the desired shape. Release the mouse button.

The vertical position of the cursor to the brush determines where the brush bends.

Vert

Lets you bend the current brush in a vertical direction.

- ■ Choose **Bend>Vertical** from the Brush menu. Drag the brush outline up or down until it is the desired shape. Release the mouse button.

The horizontal position of the cursor to the brush determines where the brush bends.

Handle >>

Lets you specify whether the cursor holds a custom brush by its centre (the default), by one of its four corners, or by an offset position, which you can define. Use the keyboard equivalent to rotate your brush handle when you need to move your cursor without moving the brush. You can move the brush handle with the mouse button *down* this way.

Rotate

Keyboard Equivalent: Alt-x
Rotate the arrow cursor, which represents the handle, from the centre of the brush (the default position) to any of the four corners of the brush. Selecting the command or typing Alt-x cycles from centre to bottom right, bottom left, top left, top right, and back to centre.

Place

Keyboard Equivalent: Alt-z
Lets you position the brush handle at any position relative to the brush. To place the handle, pick up your brush. Choose **Handle>Place**. Drag in any direction to offset the cursor from the brush. When you release the mouse button, the cursor will hold the brush as you specified.

Once you set a new brush handle

The location of the arrow cursor the next time you pick up a brush depends on the direction you drag the mouse when you pick up the brush. If you drag down and to the right, the cursor will remain at the lower right. If you drag up and to the left, the cursor will move to the top left. The same principle applies if you drag down and to the left or up and to the right. In other words, the corner you drag to is the one to which the arrow cursor will attach.

Positioning the cursor on a corner is particularly useful in Perspective mode (see the *Effect Menu*, below).

Solid Body

Turns the translucent pixels of a custom brush that are completely surrounded by any non-transparent colour to the solid colour. The outside area of the brush remains transparent.

Frame Only

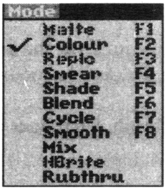
Keyboard Equivalent: Alt-f — mnemonic — frame
Displays only the bounding box of a custom brush as you move the mouse. This speeds up movement when you have a complex brush or are running low on memory. When you press the mouse button, the brush is stamped on your page.

❖ When memory is very low, custom brushes are displayed in frame only mode automatically.

Free

Deletes all custom brushes from memory.

Mode Menu



The Mode menu contains different brush modes. These modes determine which colour(s) in your brush are used when you paint. Most of the modes have keyboard equivalents, using the function keys (F-keys) on the top row of your keyboard.

❖ With the exception of Shade, none of the modes affect the colour used when you paint with the right mouse button. In any mode except Shade mode, the right mouse button paints using the current background colour in Colour mode.

Matte

Keyboard Equivalent: F1
Uses a custom brush in its original form. Those areas of the brush, which match the background colour that was in effect when the brush was first

created, are transparent. Matte is the default mode when you create a custom brush using the Brush Selector.

Colour

Keyboard Equivalent: F2
Uses the shape of the brush and fills it with the current foreground colour. Those areas of the brush, which match the background colour that was in effect when the brush was first created, are transparent.

Replc

Keyboard Equivalent: F3
Uses the custom brush in its original form (i.e., *Matte*, see above), except that no colours are transparent.

Smear

Keyboard Equivalent: F4
Smears any colours on the page when you drag a brush over them. This is like smearing a wet water-colour with your fingers, so the bigger the brush, the more pronounced the effect. Smear uses only the colours under the brush, and does not add any new colours. Current brush colour is irrelevant.

Shade

Keyboard Equivalent: F5
Shade helps you create subtle shading effects on those colours in your picture that are in a cycle range. Like **Smear**, Shade ignores the current brush colour but uses its shape. By dragging the brush over those colours in your picture that are in the currently selected cycle range, you can paint over each colour with the next colour in the range. You can paint with the next-higher colour by using the left mouse button, and the next-lower colour by using the right mouse button.

"Higher" and "lower" are relative to the colour under the brush at the time. Shade has no effect on colours outside the current range. You select a range from the Range requester, the Fill Type requester, or by using the keyboard equivalent (Alt-[and Alt-]) to step through the ranges.

Blend

Keyboard Equivalent: F6
Like **Smear**, Blend affects the colours under the brush by running them together. Unlike **Smear**, however, Blend uses additional shades by averaging the blended colours, whereas **Smear** uses only the colours under the brush. Thus, when you Blend two shades by painting over them, you are selecting a third shade from the palette, the closest one the program can find to the average of the two original shades.

Cycle

Keyboard Equivalent: F7
Uses the current brush shape and cycles through all the colours in the currently selected range as you draw. A range is selected if one of its members is selected. If a colour is a member of two ranges, selecting it selects the first of those two ranges. If your current brush colour is not within a cycle range, it paints with that colour only. Use **MultiCycle** (in the Prefs menu) to achieve the same effect with a multicoloured brush, where each colour in the brush cycles through its range independently of the others.

Smooth

Keyboard Equivalent: F8
Softens hard lines and reduces the contrast between adjoining areas. DeluxePaint finds colours in the palette between the two bordering colours

and paints the boundary in intermediate shades. Smooth looks at the current palette and finds the colours closest to the ones under the brush. Thus if the palette contains a wide selection of colours close to the ones under the brush (e.g., the selection of greys in the default palette), it will have more colours to draw from to create its weighted averages. Smooth is useful for creating airbrush effects and for eliminating jagged edges.

Mix

The colour of your brush mixes interactively with the colours already on th screen (in your image). This is particularly effective in HAM.

HBRITE

This mode is only available if your computer supports it, and if you have selected a Halfbrite screen mode from the Screen Format option in the Picture menu.. When you are in HBrite mode, painting with the left mouse button darkens colours on your painting to their Halfbrite equivalent; painting with the right button lightens colours that are Halfbrite. This mode is especially useful in pictures with shadow and highlight effects.

The Amiga supports only 32 colour registers directly, but Halfbrite uses a trick to double the number of colours available on the screen. The first 32 registers are standard colour registers; the second 32 are Halfbrite equivalents of the original 32. Pixels that use Halfbrite colours point to one of the standard colour registers and indicate that the colour should be displayed at half its normal intensity. This means that the second 32 pixels are not independent of the first 32; you can change the colour values only in the first 32 registers, and the change is automatically reflected in the Halfbrite equivalent.

❖ Not all Amiga computers support Halfbrite. If there are no Halfbrite screen modes in your Screen Format requester, your machine doesn't support it.

Rubthru

Use this mode to "rub through" portions of the current picture to the spare page — sort of like using a crayon and tracing paper to make a rubbing of a texture. The current Translucency setting controls how much of the picture is rubbed through (0% equals 100% of the image being rubbed through).

Rubthru also works with textures, translucency, and process modes.

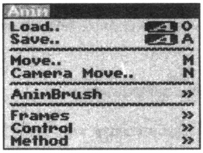
To rub through an image:

- Press `j` to go to your spare page (`j` toggles between the spare page and your picture).
- Paint on the spare page. Adjust the Translucency (**Effects>Translucency**) slider to control the amount of the image that is rubbed through.

NOTE If your spare palette is different from the current palette, DeluxePaint will use the closest colours to do the rubthru.

Anim Menu

Load...



Displays the Load Anim requester. This requester works like the Load Picture requester (see *Load* under the Picture menu). When you *load* an animation, it replaces the one currently in memory. When you *append* an animation, the appended animation is added to the end of your current animation.

It is also possible to load individual pictures into the frames of your animation using the Load Picture requester. To do so, go to the frame you wish to load a picture into, display the Load Picture requester and select the picture you wish to load. Your animation will take on the palette of the picture loaded unless you are editing a multiple palette animation, in which case the picture you load will only affect the palettes of the frames associated with the key palette you load into. If you want to restore your animation's palette, choose Palette>Restore Palette from the Colour menu. If you want to remap the picture just loaded to the Animations original palette, choose Remap from the colours menu and select current frame from the requester that appears. See *Load* in the Picture menu for more information.

Press F1 to toggle the Load Anim Options panel, which displays information about the selected animation file. There are two options in the panel: Show Loading and Append. When Show Loading is checked, each frame is shown as the animation is loaded. When Append is checked, the loaded file is appended to any existing animation frames.

Save...

Displays the Save Anim requester, which works like the Save Picture requester described under *Save* in the Picture menu. The one difference is that the Frames edit boxes in the Save Anim Options requester let you save a section of your animation as an *animation* rather than as a series of pictures as in the Save Picture requester.

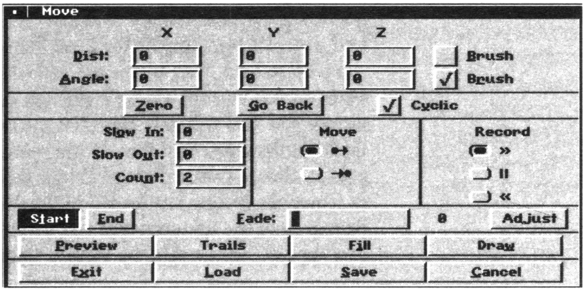
Move...

Keyboard Equivalent: M
Displays the Move requester. Use this requester to define a path along which your brush is painted in 3D, either on a single frame, or while stepping through an animation sequence.

To use the Move requester:

- Stamp your brush on the screen at the starting position you want.
- Choose Move from the Anim menu.
- Click Start, and then click Adjust to interactively set the beginning position and size of the brush.
- Click and drag the bounding box to set the position of the brush.
- Ctrl-click and drag up/down to set the size (Z axis) of the brush.
- Press Enter to accept the current position of the brush and return to the Move requester.

- Click End, and then click Adjust to interactively set the ending position and size of the brush. Press Enter to return to the Move requester when the brush is properly positioned.
- Set the Count edit field to the number of frames over which you want to animate the brush.
- Select any other settings that apply to your animation.
- Click Draw to paint the animation with the settings you specified.



Move

	X	Y	Z	
Dist:	0	0	0	☐ Brush
Angle:	0	0	0	☑ Brush

☑ Cyclic

Slow In: 0
Slow Out: 0
Count: 2

Move: ● ↔ ○ →•
Record: ● » ○ ॥ ○ «

Fade: 0

FIGURE 8.28 THE MOVE REQUESTER

Dist: The Dist edit boxes let you specify the total distance in pixels that the brush will move along the X, Y, and Z axes in your animation.

You can set the brush to move along the brush axes (√) or the screen axes (no √) by clicking the Brush action button to the right of the Dist edit boxes.

Angle: The Angle edit boxes let you specify the total angle, in degrees, that the brush will be rotated about the X, Y, and Z axes.

You can set the brush to rotate around the brush axes (√) or the screen axes (no √) by clicking the Brush action button to the right of the Angle edit boxes. Brush axes are active by default, which means the rotation is always based on the brush coordinate system.

❖ The brush coordinate system will change during the course of a Move if you are rotating on more than one axis.

If the Brush action button is *unchecked*, any angle rotation takes place along the current axes of the screen coordinate system. The "screen" rotation system is an Euler (pronounced *oiler*) system, and the order of rotation is always X, Y, and Z. When you rotate on more than one angle, or when the brush has been rotated previously, the rotations produced by the screen angle system are not always around the axes that are used for the Distance moves along the screen axes. Generally it's better to think of the screen angle rotations as "non-brush" rather than screen.

❖ All rotations occur around the brush handle. If you want your brush to appear as though it is orbiting around a point away from the brush, you would want to offset the handle from the brush.

Brush: Click these action buttons to toggle a √ on and off. The option selects whether the Dist and Angle movements are relative to the brush's coordinate system (√=on) or relative to the screen coordinate system (no √=off).

Zero: Click to zero out all of the Move and Angle numbers.

Go Back: Click to restore the brush's starting position (for the next movement) to the last place you manually clicked it down.

Cyclic: Click this button to turn it on (√), if you are creating an animation that is cyclic (that is, one that starts and ends at the same position).

For example, if you have 10 frames, and you want a brush to rotate 360 degrees over the 10 frames to make it look as though it is spinning when you play the animation, you would turn Cyclic on. DeluxePaint V would calculate the rotation to end on the 11th frame (which in this case would be the 1st frame). The result is that the brush is not rotated to a full 360 degrees on Frame 10. Instead, the brush reaches 360 degrees on Frame 1. DeluxePaint doesn't paint the brush on the last frame, since its position would normally be the same as your original frame, but it does move forward to that frame and positions the brush in the event that you want to click it down.

Slow-In: Set the number of frames over which you want the brush motion to gradually decelerate.

Slow-Out: Set the number of frames over which you want the brush motion to gradually accelerate.

Count: Set the number of times the brush is painted to complete the total movement and rotation as specified by the Dist and angle edit boxes.

Move: The Move action buttons control the direction of your move and the order in which the frames of the animation are painted. There are two choices:

●→ **Go From** starts the movement of the brush from the point where you stamped your brush (indicated by the large dot) and paints forward.

→● **Come To** starts the animation at an earlier frame and moves the brush forward to the point where you stamped your brush.

Record lets you choose the order in which the frames of the brush move are painted. These buttons are available only if you have more than one animation frame.

» **Forward** paints the move by stepping forward from the point where you stamped your brush. This is the default setting and the one you will use most often.

II **In Place** paints all of the move on the current frame.

« **Backward** paints the move in reverse order by advancing to the last frame and painting backwards. This option is useful when you are using Trails.

Start: Set the starting frame to the current values.

End: Set the ending frame to the current values.

Fade: Specify a value from 0-255 to control the amount the brush is faded from its original colour values. A setting of 0 has no effect, while a setting of 255 completely fades the brush from view. The fade effect you get is very dependent on the number of colours in your palette, as well as the number of transitional colours.

Adjust: Click this button to go to a screen where you can interactively adjust the X, Y, and Z positions of the brush for the beginning or ending frames. Which frame you set depends on whether Start or End is selected when you press Adjust.

While in Adjust mode you can use the perspective control keys to change the Z axis as well as the brush's X, Y, and Z angles. Refer to ***Appendix B: Keyboard Command Summary*** for a more complete listing of the perspective keyboard commands.

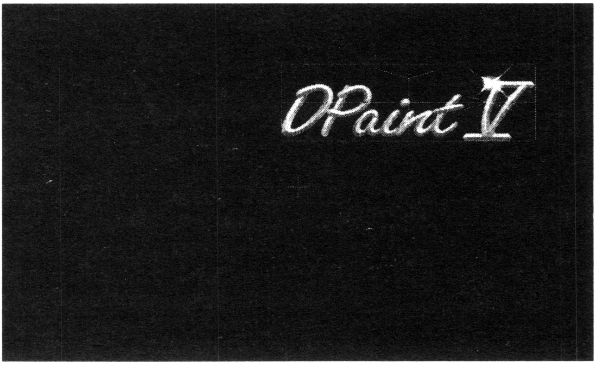


FIGURE 8.29 THE ADJUST SCREEN

Click and drag with the mouse to move the bounding box on the screen.

Ctrl Press the *Ctrl* key while dragging the mouse up/down to adjust the size of the bounding box (Z axis).

0 Press Keypad 0 to set the size of the box to the screen resolution.

Enter Press Enter to set the Start or End position to the current values and return to the Move Camera requester.

Esc Press Esc to return to the Move requester without saving the current values.

Preview: Click to view (in "wire-frame" mode) the move you have set up. When the preview is complete, the Move requester returns. To interrupt the preview, and return to the Move requester, hit the *space bar*.

Trails: This button is available only if you have more than one animation frame allocated. Clicking Trails is like clicking on the Draw button except on each frame you get the sum total of all of the draws up to this point. The net effect is that of leaving "trails" of the brush as it moves.

Fill: Works like draw, except that when you click it, the move you specified is used to draw a filled perspective plane on the whole screen based on the rotation of the current brush.

Draw: Executes the move that you have specified, causing the brush to be drawn into animation sequence.

Exit: Exits the requester and keeps all of the settings that you have entered.

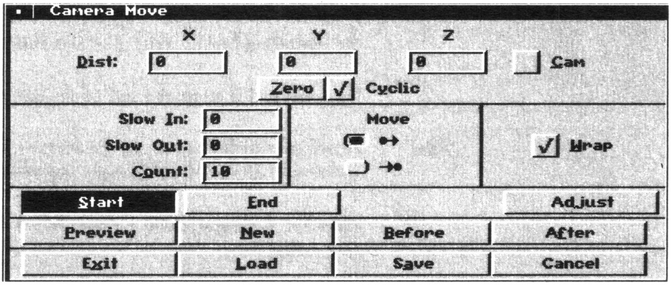
Load: Load existing Move file from Load Move requester.

Save: Save current settings to a Move file using Save Move requester.

Cancel: Restores any settings that have been changed and exits this requester.

Camera Move...

Keyboard Equivalent: N
The Camera Move requester is used to create scrolling backgrounds and camera zoom in/out moves. The appearance and operation of the requester is very similar to the Move requester, except that you're manipulating the entire screen background rather than a brush. The Camera Move requester requires a spare page (which can be larger than your main page). When in Adjust mode the Camera Move requester displays a reduced size spare page so you can more effectively position your camera view.



Dist: 0 0 0 ☐ Cam

☑ Cyclic

Slow In: 0

Slow Out: 0

Count: 10

☑ Wrap

FIGURE 8.30 THE MOVE CAMERA REQUESTER

Dist: Set X, Y, and Z distance that the camera will move in pixels.

X and Y are the horizontal and vertical positions, respectively, and Z controls the camera in/out position. Negative Z values display more of the background screen; positive values zoom in to display a smaller portion of the background.

Zero: Set X, Y, and Z values to 0.

Cyclic: Click a check mark in this button to make an animation that is cyclic — i.e., it ends and begins in the same place for seamless looping animations.

Slow In: Set the number of frames over which you want the camera motion to gradually accelerate.

Slow Out: Set the number of frames over which you want the camera motion to gradually decelerate.

Count: Enter the number of frames over which you want to animate the camera move.

Move: Set the direction to either Go From (start animation from the current frame and move forward) or Come To (start animation at an earlier frame and end at the current frame.

Wrap: Put a check in this box to automatically wrap the edges of the imag in a camera move when the camera moves offscreen.

Start: Set the starting frame to the current values.

End: Set the ending frame to the current values.

Adjust: Interactively place the beginning or ending frame of the animation sequence that DeluxePaint will build. Which frame is set is determined by whether Start or End is selected when Adjust is activated.

Click and drag with the mouse to move the bounding box on the screen.

Ctrl Press the *Ctrl* key while dragging the mouse up/down to adjust the size of the bounding box (Z axis). Use this feature for camera zoom effects.

0 Press Keypad 0 to set the size of the box to the screen resolution.

Enter Press Enter or Return to set the Start or End position to the current values and return to the Move Camera requester.

Esc Press Esc to return to the Camera Move requester without saving the current values.

Preview: View a wireframe preview of the camera move animation. When the preview is complete, the Move Camera requester returns. To interrupt the preview, hit the *space bar*.

New: Create a new animation in memory using the current settings. Any existing animation is deleted (no warning is issued). This action cannot be undone.

Before: Insert an animation generated from the current settings before the current frame.

After: Insert an animation generated from the current settings after the current frame.

Exit: Exit the requester while maintaining the settings you have entered.

Load: Load an existing camera move file.

Save: Save current settings as a camera move file.

Cancel: Restores any settings that have been changed and exits this requester.

AnimBrush >>

An AnimBrush is a special type of brush that has more than one cel associated with it.

oad...

Displays the Load AnimBrush requester. This requester is identical in function to the Load Picture requester described under **Load** in the Picture menu, except that you are loading an AnimBrush.

When you load an AnimBrush that has a palette different from that of the current picture, the picture's palette remains in place. Nonetheless, the brush palette information is loaded along with the brush; you can change to the brush's palette at any time by choosing **Palette>Use Brush Palette** from the Colour menu.

Press F1 to cycle the Load AnimBrush Options panel on/off. Check the Load With Palette check gadget to load the brush's palette with the AnimBrush file.

ave...

Displays the Save AnimBrush requester. This requester is identical in function to the Save Brush requester described in the **Save** option of the Brush menu.

Press F1 to cycle the Save AnimBrush Options panel on/off.

Pick up...

Selecting Pick up is similar to selecting the Brush Selector (rectangular mode) from the Toolbox. However, when you pick up an AnimBrush, you pick up all the "cels" that make up the animated sequence in the AnimBrush.

- ❖ Cels are to an animated brush what frames are to an animation.

When you paint with an AnimBrush, the brush cycles through its frames automatically as you paint. The brush will continuously cycle on the current animation frame unless you hold down the Alt key when you press the mouse button down, in which case the brush will paint each of its cels separately into each of the animation sequence frames.

Choosing Pick up displays the Pick up AnimBrush requester. To pick up t whole animation, click OK; drag the cross-hair to select the entire "animated" area. When you release the mouse button, DeluxePaint attaches an animated brush to your cursor. You can use an AnimBrush with any painting tool, just as you would use a custom brush.

❖ If you want to make an AnimBrush from only a few frames of your animation, you only need to pick up those frames. Move to the first frame in your intended AnimBrush, and choose **AnimBrush>Pick up** Type in the number of cels that will compose your AnimBrush in the Pick up AnimBrush requester. Click OK.

For example, let's say you have an animation of 15 frames. And that you want to make an animated brush out of what appears on frames 6 through 10. You would move to frame 6, type 5 in the Pick up AnimBrush requester, and click OK. Frames 6 through 10 make up cels 1 through 5 of your new AnimBrush.

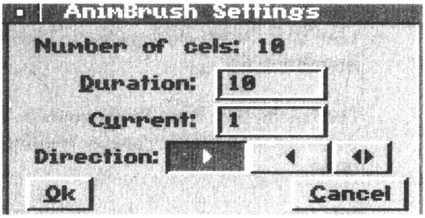
Note, however, that you cannot pick up an AnimBrush of only one frame.

Alt

Holding down the Alt key while picking up a brush with the Brush Selector is the same as choosing **AnimBrush>Pick up**. The Pick up AnimBrush requester appears. Type in the number of cels that will compose your AnimBrush and click OK.

Settings...

After you have picked up an animated brush, Settings displays the AnimBrush Settings requester. Use this requester to control the AnimBrush.



AnimBrush Settings

Number of cels: 10

Duration: 10

Current: 1

Direction:

FIGURE 8.31 ANIM BRUSH SETTINGS REQUESTER

Number of cels: Shows you how many cels of animation are in your AnimBrush.

Direction: These three icons give you the choice of flipping forward, flipping backward, or ping-ponging through the cels of your AnimBrush as yo paint.

Duration: Lets you set the number of frames it takes the AnimBrush to move completely through its cels. You can also think of this as the rate at which the AnimBrush transforms. For example, if your brush has 10 cels and you set duration to 20, your brush will stamp each of its cels twice before flipping to the next cel.

Current: Lets you type in the value for the brush cel you want to start with. This is very useful if you want to continue painting from a particular cel of your brush.

When the requester is not displayed, you can step backward and forward though the cels of your AnimBrush by pressing `7` or `8` on the keyboard (not the keypad). Shift-`7` steps to the first cel, and Shift-`8` steps you to the last cel.

Use

Makes the last AnimBrush you "picked up" the current brush. This lets you pickup an AnimBrush, then pickup a regular brush, and then return to your AnimBrush. You can also restore your AnimBrush by right-clicking the Brush Selector. This toggles between a standard custom brush and an AnimBrush.

e

Releases the memory used by the current AnimBrush.

❖ You cannot retrieve the brush once you free it! Any time you think you are low on memory, but *before* you throw away brushes or frames, press Ctrl-`a`. This displays information about available memory in the menu bar.

Frames

Presents a submenu of options for manipulating the frames in your animation.

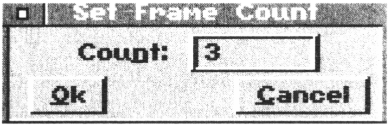
#...

Displays the Set Frame Count requester. DeluxePaint will try to allocate as many frames as are requested. If there is not enough memory to allocate the requested number of frames, DeluxePaint will allocate as many as memory will allow.

You can use this requester to add or delete frames to your animation. For example, you could add several frames to the middle of your animation by stepping to the frame you want to add frames *after*, and changing the number of frames to the current count plus the number of frames you want to add.

Similarly, you could delete several frames from any point in your animation by stepping to the first frame you want to delete and changing the number of frames to the current count minus the number of frames you want to delete. For example, if you have 100 frames and you want to delete frames 41 to 50, step to frame 41 and set the number of frames to 90.

#...



Count: 3

FIGURE 8.32 SET FRAME COUNT REQUESTER

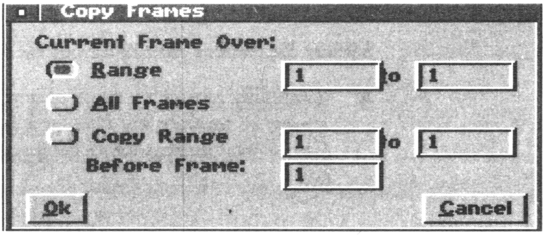
Add frames...

Displays a requester that lets you add any number of frames after the current frame. DeluxePaint copies the contents of the current frame to the added frames, and makes the last new frame the current one.

Keyboard Equivalent: Ctrl-click on the + icon in the Animation Control Panel. Alt-= will automatically add a single frame to the animation.

Copy frames...

Keyboard Equivalent: Ctrl-f
Displays a requester that lets you copy the current frame to a range of frames or to all the frames in your animation sequence. Use the Insert Before Frame edit box to place the copied range of frames in your animation before a certain frame. This is the only requester option that will actually add/insert newer frames in your animation.


Copy Frames

Current Frame Over:

● Range [1] to [1]

○ All Frames

○ Copy Range [1] to [1]

Before Frame: [1]

FIGURE 8.33 COPY FRAMES REQUESTER

Delete frames...

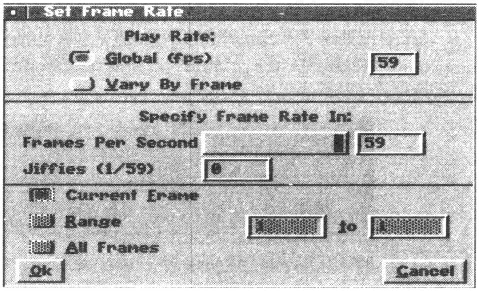
Displays a requester that lets you delete the current frame, a range of frame or all frames in your animation sequence. If you delete the current frame, DeluxePaint makes the following frame the current frame unless you are already at the last frame.

Keyboard Equivalent: Ctrl-click on the - icon in the Animation Control Panel. Right-Amiga - (***A***-minus key) automatically deletes the current frame of your animation.

Set Frame Rate...

Keyboard Equivalent: Right-Amiga - R

This requester controls the frame rate(s) of your animation on a global or frame by frame basis.


Set Frame Rate

Play Rate:

● Global (fps) [59]

○ Vary By Frame

Specify Frame Rate In:

Frames Per Second [59]

Jiffies (1/59) [0]

▨ Current Frame

▨ Range [ ] to [ ]

▨ All Frames

FIGURE 8.34 SET FRAME RATE REQUESTER

Play Rate: Click either a Global (fps) rate or Vary By Frame setting. If Global (fps) is selected, type the desired frame rate (frames per second) in the text gadget at the right. The maximum frames per second is determined by how large your animation is, your Amiga CPU, and the screen mode and resolution the animation is displayed in. If Vary By Frame is selected, use the options at the bottom of the requester to set the frame rate for a single frame, a range of frames, or all frames.

Specify Frame Rate In: Use the slider or text gadgets to set the Vary By Frame rate in Frames Per Second or Jiffies (a jiffie is a unit of measurement equal to one divided by the frame rate of the current mode). Note that double-buffered modes aren't as fast as regular modes. When using the Frames Per Second slider, you can select a legal frame rate (based on even divisibles of the frame rate of the current mode; see the Display Information window in the Screen Format requester).

The Jiffies text gadget lets you set a pause based on Jiffies (1/frame rate of the current mode). To set a frame pause in seconds, type a number that is the multiple of the frame rate for the current mode. For example, in NTSC Lo-Res the maximum frame rate is 60 fps, so to pause a frame for 3 seconds, you would enter 180 jiffies (3x60).

After you have chosen a variable frame rate, you can apply the rate to the following frame choices:

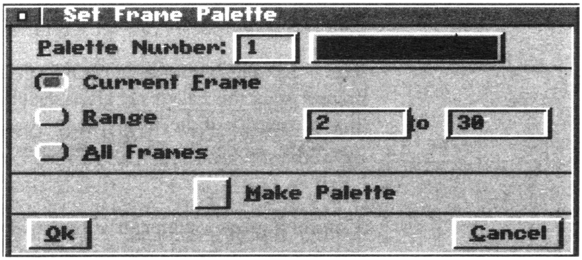
Current Frame: The default, this will make the current frame use the fps or jiffies value entered above.

Range: This radio button applies the frame rate to the range of frames specified in the text gadgets (first frame to last frame) to the right of the button.

All Frames: Apply the frame rate in fps or jiffies to all frames in the animation.

Set Frame Palette...

Displays the Set Frame Palette requester, where you can set up multiple palettes for an animation. To create multiple palette animations you must first create unique palettes, then apply the palettes to the frames you wish to change. Once you've made a unique palette, you can modify its colours, load in a new palette, or load an image and use its palette.



Palette Number: 1

● Current Frame

○ Range 2 to 30

○ All Frames

☐ Make Palette

FIGURE 8.35 SET FRAME PALETTE REQUESTER

Palette Number: Enter the number of the Palette you wish to apply to a si gle frame or a range of frames.

Current Frame: Apply the selected palette to the current frame of the animation.

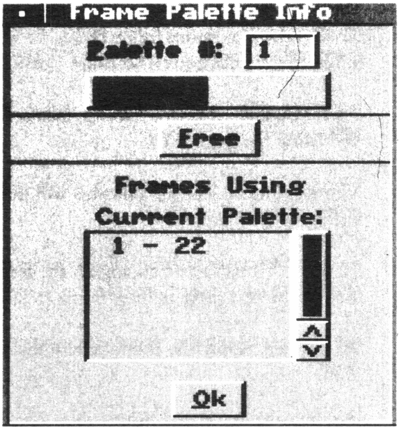
Range: Apply the selected palette to the specified range (set in the text boxes to the right of the box).

All Frames: Apply the selected palette to all the frames of the animation.

Make Palette: Creates a new palette from the palette currently used in the selected frame(s). On exit, DeluxePaint creates a unique palette, which you can modify without affecting the palettes used in any other frames.

Frame Palette Info...

Displays the Frame Palette Info window, which shows a list of frames asso ated with the current palette.



Palette #: 1

Frames Using Current Palette:
1 - 22

FIGURE 8.36 FRAME PALETTE INFO

Palette #: The number of the current palette — the one applied to the cur rent frame.

Frames Using Current Palette: A list of frames that use the current palette

Free: Click this button to purge the selected palette from memory. The frames using this palette are given the palette from the frame previous to tl first occurrence of the 'freed' palette. Use the close gadget in the top left cc ner of the window to exit this requester.

Control

Control displays a submenu of options for moving around in your animation frames and for playing the animation.

el

Keyboard Equivalent: Alt-a
Displays the DeluxePaint Animation Control Panel. It contains a Frame Counter scroll bar and 15 control buttons for working through and playing your animations. Click an option on the Panel to select it. When the panel is displayed, a check mark appears next to the option in the menu.

❖ The options represented by the control buttons can also be selected from the Anim and Effect menus, which is where these features are described in detail. It is convenient to have them all in the Control Panel, so you don't have to access a menu, or use the keyboard while you're working on your animation.

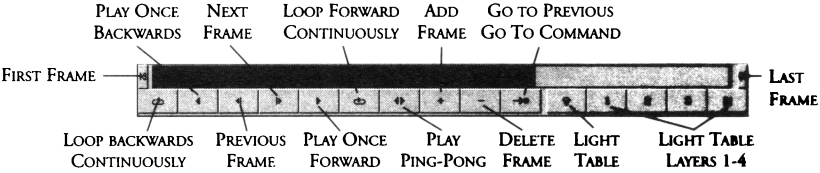

PLAY ONCE BACKWARDS
NEXT FRAME
LOOP FORWARD CONTINUOUSLY
ADD FRAME
GO TO PREVIOUS GO TO COMMAND
FIRST FRAME
LAST FRAME
LOOP BACKWARDS CONTINUOUSLY
PREVIOUS FRAME
PLAY ONCE FORWARD
PLAY PING-PONG
DELETE FRAME
LIGHT TABLE
LIGHT TABLE LAYERS 1-4

FIGURE 8.37 ANIMATION CONTROL PANEL WITH CALLOUTS

Frame Counter
The number of the current frame and the total number of frames in your animation appear in the left corner of the Title Bar. You can move to a specific frame by dragging the Frame Counter scroll bar, clicking on either side of the scroll box, or by clicking the Next Frame or Previous Frame icons in the Control Panel. Any movement you make is reflected in the numbers on the Title Bar.

... Range...

Displays the Set Play Range requester. Use this requester to instruct DeluxePaint to play any range of frames, or all frames in your animation.

❖ The *From* number in your range must be smaller than the *to* number for the range to play correctly.

The range setting is used by the Play Once and Ping Pong options in the Control submenu, but the Play option is not affected.

This option is especially useful if you are editing a small section of a large animation. You can edit the frames and play only the frames you are editing to see your changes.

Previous

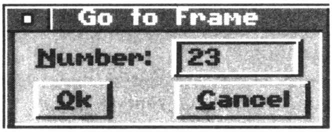
Keyboard Equivalent: 1
Steps the current frame to the previous frame in the animation sequence. If the current frame is the first frame, the position is set to the last frame.

Next

Keyboard Equivalent: 2
Steps the current frame to the next frame in the animation sequence. If the current frame is the last frame, the position is set to the first frame.

Go to...

Keyboard Equivalent: 3
Displays the Go to Frame requester. This requester lets you position the current frame to any of the available animation frames. You can also display this requester by Ctrl-clicking the Go to icon on the Animation Control Panel.



Number: 23

FIGURE 8.38 THE GO TO FRAME REQUESTER

Repeat last Go to

Keyboard Equivalent: Shift-3
Clicking on this icon brings you to the frame number set in the Go To requester. You can display this requester either by choosing **Control>Go to** from the Anim menu, or by Ctrl-clicking on this icon.

Play

Keyboard Equivalent: 4
Plays the animation at the speed set in the Set Rate requester. The animation sequence will continue cycling until you press the *space bar.* (You can reverse the direction of playback by pressing `r` on the keyboard while the animation is playing.)

Play once

Keyboard Equivalent: 5
Plays the animation sequence once through from Frame 1 to the last frame

Ping-pong

Keyboard Equivalent: 6
Plays the animation sequence continuously as in **Play** above, but plays the sequence forward then backward then forward then backward and so on. Click or press the *space bar* to stop the animation.

Method >>

The Method menu contains two submenu options which can be used to specify the "memory model" of the animation sequence frames. The memory model refers only to the animation in RAM, not to the disk file. When you load an animation, it is loaded into your current memory model.

Compressed

The Compressed Method, while a little more complex than the Expanded Method, offers the advantage of permitting many more animation frames i memory at one time. The compressed memory model only needs enough memory to store the differences between frames. While this model allows for more frames, it has a couple of disadvantages: it is slower than the expanded method while animpainting, loading and saving are slower, and memory tends to fragment, making it easy to run out of memory.

Expanded

The Expanded Method represents the simplest of the two memory models where all of the memory for each animation frame is allocated. If you are i low resolution mode, 320 x 200, and you have 10 animation frames, then you would need enough memory to hold 10 complete 320 x 200 images. Two advantages of this method are that the frame flipping for animpaintin is very smooth, and you will not run out of memory to add an element to your animation within the allocated frames.

If you set this option and then request animation frames, DeluxePaint automatically inserts the maximum number of available frames in the Set Frame Count requester so that you don't have to guess how many frames you can create.

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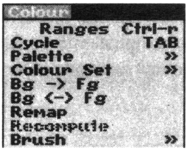
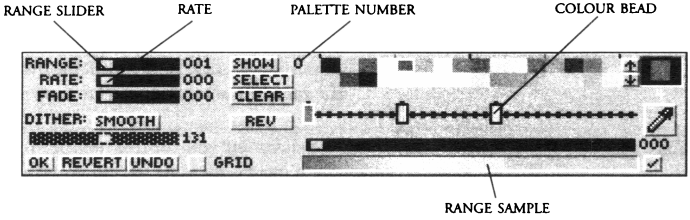

Colour
Ranges Ctrl-r
Cycle TAB
Palette »
Colour Set »
Bg -> Fg
Bg <-> Fg
Remap
Recompute
Brush »

nges...

Keyboard Equivalent: Ctrl-r
Displays the Range requester, which you can use to define customised colour ranges for the colour cycling, gradient fill, and Shade features of DeluxePaint.


RANGE SLIDER
RATE
PALETTE NUMBER
COLOUR BEAD
SHOW
SELECT
CLEAR
REV
OK
REVERT
UNDO
GRID
RANGE SAMPLE

RANGE: 001
RATE: 000
FADE: 000
DITHER: SMOOTH
131
0
000

FIGURE 8.39 RANGE REQUESTER

Range

The Range requester lets you specify the colours in a range (maximum of 256 colours), and how the colours are mixed. You can define eight ranges for each picture or animation.

To define a range:

- The RANGE slider indicates the number of the current range. By default this is range 1. You can see the range of colours displayed on the range bar. Click to the right of the slider or drag the slider to the right to access an empty range bar.

  All range-based features depend on the Range number set in this requester. Once you've created ranges to work with, you can step forward and backward through them without entering the requester by pressing Alt-] and Alt-[.

- To select a colour for the range, move the arrow cursor to the row of colours in the requester and click on a colour.

When you click a colour, it appears in the sample square. The arrow cursor becomes the colour bead cursor. If you *don't* want to use the colour you chose, click another with the colour bead cursor. When the colour you want is in the sample square:

- Move the bead cursor to the range bar. Position the cursor where yo want the selected colour to fall in the range, and click. The colour appears in the range.

  The position of colours in the range control the cycle direction for e range, and also sets the direction of the range when it is used as a gradient. The start colour is the colour furthest left on the range bar. Any colour cycling begins with this colour.

Each colour you place on the bar appears in the range sample. The gradient between colours, that is the transition of shades from one colour to the next, is calculated automatically. You can place original colours far apart t create subtle blending of colours, or close together to create more abrupt transitions between original shades.

In modes other than HAM or 24-bit backing store mode, DeluxePaint ca use only colours currently in the palette to make these transitions. If the transitional shades are not in the palette, colours may appear as discrete or unevenly mixed bands in the range. You can overcome this limitation by adding the transitional shades to the palette.

Copying Tip

❖ It is possible to copy a range to the next range set in the requester. T do this: Move to a defined range you want to copy; drag the Range slider to the range number you want to copy to; click Undo. (It's important to click Undo with no intervening clicks after you display the range number you want to copy to

Rate

The Rate slider lets you control the speed of colour cycling for each range. Drag the slider to the right for faster cycling. While dragging the slider yo can monitor the colour cycling on the page, even if Colour Cycling is turned off. The number to the rate of the slider indicates the current speed setting. This number is intended to help you set different ranges to the same speed. The number does not indicate the relative speed of the cycling sinc the increments from 0 to 63 are not equal.

Fade

This slider sets the gradient translucency amount for the currently selected bead in the range bead line. The values range from 0 (fully opaque) to 25 (fully translucent). DeluxePaint will allow you to place fade values on any individual colour bead in your range up to 256 colours.

To create a gradient with translucency values, select a colour and place it the range bar. While the colour is still selected (if you want to select a colour that is already on the range bar, click to select it and then put it back down on the bar in its original position), drag the FADE slider to set the transl cency value for the selected colour. As you do this you will notice that a small square bead appears below the selected colour and changes from black to white as you increase the fade slider. Black is an indication of pure colour or opaqueness and white is an indication of colourless 100% translucency

When you manipulate fade values for any colour in the range bar, DeluxePaint interpolates to create a spread of fade values between the sele ed colour and the nearest colour that has a fade value assigned to it. You c set fade values for beads in the range bar even if no colours are assigned to the bead location — a box will appear below the bead to show the selected fade setting.

Show

Click SHOW to see the results of your colour selections and placements. The band beneath the bar shows the gradual transition from colour to colour as it would appear if you had access to all 4096 colours in the colour universe (as you do in HAM mode). The band above the Range requester shows the gradient as it will appear using the available colours in the palette of your current mode.

Select

To select a range of colours, click the first colour in the range, and click SELECT. The dropper icon appears attached to the cursor. Click the second colour, and all the colours up to and including the second colour are selected.

Clear

To eliminate a colour from the bar, click it, move the bead cursor off the bar, and click again. The arrow cursor returns.

To eliminate all colours from the range, click the CLEAR action button.

Rev

Keyboard Equivalent: Alt-r
You can reverse the direction of the colour range, and therefore the direction of cycling and gradient by clicking the REVERSE action button.

- Select another colour and position it on the bar. Repeat this step until all the colours you want are on the bar. To reposition a colour on the bar, click it, move the bead cursor to another position, and click again.

Dither

There are three dither options. When Smooth is selected, DeluxePaint tries to blend the colours of the range as smoothly as possible. Pattern splits the colours more, but uses a slight dither at each colour border. Random allows you to set the dither from no dither to smooth, using the dither slider.

Dither slider

The slider beneath the Random button reduces the contrast between adjacent colours (without changing the colours themselves). Drag the Dither slider to the right to increase the amount of dither. Setting the slider all the way to the left gives almost no random mixing between shades. Moving the slider to the right increases the amount of mixing at the colour boundaries.

❖ If you are not in HAM or 24-bit backing store mode, and you have placed colours on the gradient bar with empty notches between the colours, you may not see the dither effect you expect. When you leave notches between colours on the bar, DeluxePaint calculates the spread of colours that would fill the notches and then looks in the palette for the closest matching colours to fill in the range. In many cases, the closest colour will be one of the colours already on the bar. A dither between two identical colours will look like no dither at all.

In modes other than HAM or 24-bit backing store, it is advisable to always place all the colours you want in your gradient on the bar with no empty notches between them. This way you will get exactly the colours you expect, and the dither will appear as you would expect it to.

If you are working in HAM mode, you won't see the dither effect in the gradient sample painted in this requester. To see the gradient with dither effects, go to the Fill Type requester.

OK
Click OK to accept the changes and exit.

Undo
You can reverse the last change you made in the palette or Range requester by clicking UNDO.

Revert
This returns the Range requester to the condition it was in before you displayed the requester.

Grid
Click this checkbox to display a grid around the colours of the palette. Register colours have a white grid highlight, and non-register colours have a blue grid highlight. The grid is off by default.

Cycle

Keyboard Equivalent: Tab
Toggles colour cycling on/off. Colour cycling uses the colour ranges you define in the Range requester. (See *Range*, above). If a colour is not included in any range, it does not cycle. See "Animation with Colour Cycling" in Tutorial One of ***Chapter Four: Painting Tutorials***.

Palette >>

Mixer On/Off

Keyboard Equivalent: p
Displays/removes the Colour Mixer. You can also display this Mixer by right-clicking the Colour Indicator (between the Palette and the Toolbox).

❖ There is a subtle but important difference between removing the Colour Mixer by choosing the menu option and by clicking OK. When you choose the menu option or press `p`, the Colour Mixer is hidden behind the current screen and the data in the Mixing Area remains intact when you redisplay the requester. Clicking OK in the requester accepts all changes in the Colour Mixer and clears the Mixing Area.

The Colour Mixer is the master colour control panel. From here you can mix and modify colours, create spreads, and copy or exchange colours.

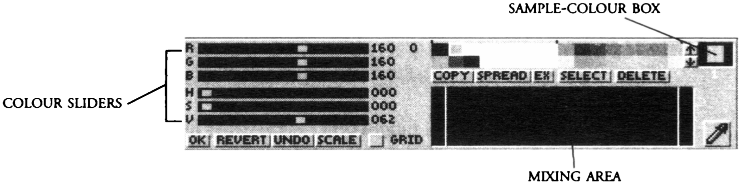


FIGURE 8.40 THE COLOUR MIXER REQUESTER WITH CALLOUTS

❖ You should remap immediately after you change the colour arrangement in the palette. If you modify the palette a second time without first remapping, you will not be able to remap to the original palette.)

SELECT SELECT lets you select a range of colors from the palette.

- Select the first colour from the palette.
- Click SELECT. The dropper icon cursor appears attached to the cursor.
- Click the second colour.

The colours from the first colour up to and including the second colour are selected.

❖ You can also use keyboard shortcuts to select a contiguous or discontiguous range of colours:

To select a contiguous range of colours, click the first colour, and then hold the Alt key while clicking the second colour.

To select a discontiguous range of colours, Shift-click on any colour. The colour you Shift-clicked on is added to the previously selected colours, which are still selected.

Use DELETE to remove one or more colours from the colour set.

- Click a colour you want to delete.
- Click DELETE. The dropper icon cursor appears attached to the cursor.

If you want to delete only one colour, click on that colour in the colour set. The colour will be deleted and the slot it occupied in the colour set will be empty.

If you want to delete more than one colour, a range for example, click the first colour in the range; click SELECT; move the dropper icon cursor to the last colour in the range; and click the colour. Click DELETE, and DeluxePaint deletes all colours between the selected colour in the sample-colour box and the colour you clicked on.

Use the eye dropper icon in the lower right corner of the panel to select a new foreground or background colour for your palette.

- Click the Dropper icon. The pointer changes to an eye dropper cursor (You can also display the eye dropper cursor by pressing the comma key " , ").
- Position the point of the eye dropper on the colour you want to become the new foreground or background colour.
- Click to make the colour you clicked on the new foreground colour. Right-click to make it the new background colour.

❖ To copy your new colour into the palette, use COPY.

☐ Hue refers to the colour's position on the colour spectrum. As you move the box along the Hue slider (starting from the left), your current colour changes to a shade of the following colours — Red, Orange, Yellow, Green, Blue, Purple, and Red.

☐ Saturation refers to the strength of the particular hue and the extent to which the strength is "diluted" by some proportion of white. If your current colour has a Saturation setting of zero, your colour is necessarily white.

☐ Value refers to the amount of light a colour reflects off a surface (and therefore, the absence or presence of black). A colour with a high Value setting has little or no black, whereas colours with low Value settings contain more black. No matter what settings you've entered for Hue and Saturation, a Value setting of zero produces pure black.

In the requester, the RGB system uses a 256-point scale (0—255) for colour values in AGA or 24-bit mode, while the HSV method uses two different types of measurement. Hue is referred to in degrees of the Colour Wheel (0—360°) and Saturation and Value are measured in percentages (0-100%).

(See Tutorial One in ***Chapter Four: Painting Tutorials*** for an explanation of colour mixing in RGB or HSV).

Use the COPY button to copy a colour from your picture or the palette.

- Select the colour you want to copy .
- Click COPY. The dropper icon cursor appears attached to the cursor.
- Click the slot in the requester into which you want to copy the new colour.

SPREAD helps you quickly create a spread of shades between two colours.

- Select the first colour from the palette.
- Click SPREAD. The dropper icon cursor appears attached to the cursor.
- Click the second colour.

DeluxePaint creates a uniform spread of colours, taking into account the beginning and ending shades and the number of colours in between in your palette.

Use the EX button to exchange the positions of two colours in the palette.

- Select the first colour from the row of colours.
- Click EX. The dropper icon cursor appears attached to the cursor.
- Click the second colour.

If you use EX to rearrange the colours in your palette, the resulting screen image will likely be in the wrong colours. You can correct this by choosing **Remap** from the Colour menu.

Only one colour can be edited at once. To edit the selected colour:

- Drag one or more of the RGB/HSV sliders to change the colour values, which changes the colour itself.

Mixing a Colour

- Click a medium sized built-in brush and paint in the mixing area.
- Choose another colour, and paint over the first colour in the mixing area. As you combine the two colours, new shades are created. You can repeat this step as often as you like.
- When you have created a colour you want to use, click the slot in the colour set where you want to place the new colour.
- Click the eye dropper button; click the colour in the mixing area to make that shade the new colour.

Clearing the Mixing Area

You can clear the Mixing Area to any colour by copying the colour to it. Here's how:

- Select the colour you want to clear the Mixing Area to.
- Click COPY. The dropper icon appears attached to the cursor.
- Click the in the Mixing Area. It is cleared to the colour you selected.

Arrange

Keyboard Equivalent: P
Shows the Arrange requester. It displays all 256 colours of a Colour Set (8 rows [128 colours] at a time). Clicking on the up and down arrows scrolls through the colour set one row at a time (16 colours in a row). Shift-clicking on an arrow scrolls 4 rows at a time. Arrange is helpful if you want to copy, exchange or spread colours over more than one row at a time. The Arrange requester will replace the Colour Mixer if it is open.

Use the Arrange requester to create and organise colours in your palette or delete colours. It lets you delete colours easily, so that new colours can be added to the current 256-colour set.

The action buttons in the Arrange requester work exactly as they do in the Colour Mixer. See above.

Use Brush Palette

When you load a brush from disk, DeluxePaint continues to use the current picture palette, even though it may be different from the one the brush was created with. Use Brush Palette switches to the brush palette, and includes any information about colour cycling that was saved with the brush. If the newly loaded brush uses more colours than the current picture, Use Brush Palette switches to the brush palette and reduces the number of colours to that of the picture palette. It does so by recomputing the palette to match the original as closely as possible with fewer colours. After choosing Use Brush Palette, you can still revert to the original picture palette by choosing **Restore Palette** (see below).

[illegible] You can clear the changes you made in the Colour Mixer by clicking REVERT. With the exception of the mixing area, this returns the requester to the condition it was in before you displayed the Mixer.

[illegible] You can reverse the last change you made in the Colour Mixer by clicking UNDO.

SCALE You can convert your old IFF RGB4 values (0 to 15 — almost any of your IFF pictures created with previous programs) to RGB8 values (0 to 255).

☐ **GRID** Click the GRID check gadget to turn the highlight on the top and left edges of the colours in the palette on or off.

Colour Mixing Area
Use the mixing area to interactively mix colours to create new ones, and, if you wish, add colours to your palette. You can use colours in the picture, colours from the palette, and colours you mix to create new shades. Using your current built-in or custom brush you can select colours from the palette (one at a time), paint with them in the mixing area, and mix them with other colours.

Creating a New Colour
You can create a new colour in the Mixing Area in three basic ways:

1. Mix a selected colour in the mixing area with one or more other selected colours. The resulting colour can be a new colour. Use the Pick icon to select the colour and add it to the selected colour cell.
2. Edit a colour by adjusting its values with the RGB/HSV sliders.
3. Drop colours in the mixer 'wells' at either end of the mixer. DeluxePaint creates a spread between the two colours at either end of the mixer. You can then add any of the spread colours to your palette or colour set one at a time.

   Here's a step-by-step example of how to select a colour from the current picture, edit it, mix it with another colour, and add it to the palette.

Selecting a Colour

- With a picture on your screen and the Colour Mixer exposed, click the dropper action button.
- Move the dropper cursor to the picture and click on a colour.

  The colour you clicked on automatically becomes the current foreground colour. It appears in the sample-colour box, so you can paint with it immediately. The colour slot of the new colour appears highlighted or indented in the colour set.
- To select multiple colours from the palette, use the SELECT button or Shift-click to select each colour.
- To select a range of colours from the palette, click to select the first colour in the range, and then Alt-click on the last colour you wish to select in the range.

If you choose Overwrite, the colours you have selected are entered into your current Colour Set beginning at colour 0 and the new colours overwrite the previously existing colours.

If you change your mind and decide not to load any colours, click **Cancel** in the requester.

Save ...

Saves a 256-colour set as a separate file. The Save Colour Set requester works just like the Save Picture requester (see *Save* under the Picture menu).

Bg ->Fg

Changes all pixels that use the current background colour to use the current foreground colour. This provides an easy method of changing colours globally — all pixels in the current background colour in the picture are changed to the current foreground colour. The change occurs on-screen only and does not affect the order of colours in the colour palette. This is a quick and easy way to swap the colors of your image without modifying the palette.

- ❖ Undo does not reverse this change.

Bg<->Fg

Swaps all pixels in the current background colour with the current foreground colour. This is similar to the **Bg->Fg** option above, except that the change occurs in both directions. The change occurs on-screen only and does not affect the order of colours in the colour palette.

- ❖ Undo does not reverse this change.

Remap

When you create a picture, DeluxePaint "remembers" each colour on the screen by remembering its location in the palette. If a picture on the screen was created with a palette other than the current palette (for example, if you have modified the palette since loading the picture), Remap finds the locations in the current palette of the colours it used in the original palette and tells the picture to look there for its colours. **Bg->Fg** and **Bg<-> Fg**, above, are special cases of Remap. See also *Remap* under the Brush option of the Colour menu, below.

- ❖ Undo does not reverse this change.

Recompute

This option is only available in HAM mode or higher. Choosing this option recomputes the picture data by doing a remap with the current palette. If you have loaded a HAM image from a different program, Recompute may reduce the fringing effects you see when moving a brush across the screen.

In 24-bit mode, Recompute produces the best screen palette from the 24-bit data currently in memory. See ***Appendix E: The 24-Bit Backing Store*** for more information.

Compare Use Brush Palette with **Remap** in the Colour menu; this command lets you keep the current picture palette, but maps the brush to the picture palette to match the original brush as closely as possible.

Restore Palette

Returns you to the palette you were using before the current palette. Thus, if you load a picture with a different palette, Restore Palette reverts to the palette in effect before the load. See also *Use Brush Palette*, above, and *Default Palette*, below.

Default Palette

The default palette is the palette DeluxePaint uses when you first start the program. The Default Palette command replaces the current palette with the default palette and resets any ranges you may have created to its (their) default state.

Load...

Load a palette that you have previously saved, without loading an image. The Load Palette requester works just like the Load Picture requester (see *Load* under the Picture menu). When you load a palette, the palette colours overwrite your current palette directly. Compare this to loading a Colour Set, explained below.

Save...

Save a palette without saving the image. The Save Palette requester works just like the Save Picture requester (see *Save* under the Picture menu). Only the Base Register colours (those colours that appear below the Toolbox) are saved, NOT the entire colour set.

Colour Set

Load...

Displays the Load Colour Set requester. This requester works just like the Load Picture requester (see *Load* under the Picture menu).

Once you've selected the Colour Set file you want to load and clicked Load in the first requester, a second Load Colour Set requester appears.

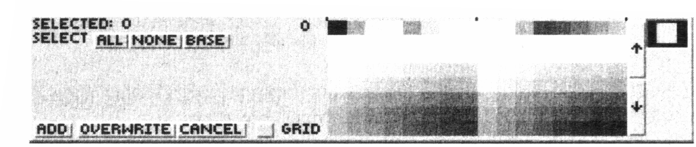


FIGURE 8.41 LOAD COLOUR SET REQUESTER

This requester lets you choose which colours from the Colour Set are to be loaded into your current colour set. To select colours, click on them. Click on a colour a second time to deselect it. The **All** button selects all colours in the Colour Set. The **None** button deselects all colours. The **Base** button selects only the colours in the palette (base registers).

Once you have selected the colours you want to load, you can either **Add** them to your Colour Set or **Overwrite** the current Colour Set. If you choose Add, the colours are added beginning in the first empty slot of your current Colour Set. Colours will be added only until the Colour Set is full.

Make ...

Keyboard Equivalent: ~ (tilde, below Esc)
This displays the Make Stencil requester. You can reposition the requester anywhere on the screen by dragging the Title bar.

To make a stencil:

- Click the colours you want to use to create the stencil. You can select colours by clicking them in the requester's palette, by clicking colours in your picture, or by clicking colours in the main palette.

- When you have clicked all the colours you want to protect, click MAKE.

The colours you select define a mask that protects an area from being painted over. The shape of the stencil is what is created and saved, not the colour information, which means you can change the colours of a "stencilled" shape, and still retain the stencil.

If you have several animation frames, DeluxePaint automatically remakes the stencil as you move from one frame to the next, either manually or while using the Move requester.

CLEAR: Clears the current colour selections in the requester.

INVERT: Inverts the current colour selections. This is useful if you want to mask more colours than you want to leave unmasked.

When you are using HAM or 24-bit backing store mode, your Make Stencil requester also contains a Show button, a Fine Tune button and a Tolerance edit field. These options are explained in detail, with examples, in Tutorial Five of *Chapter 4: Painting Tutorials.*

Show toggles the show stencil function on and off. This works like the **Stencil>Show** option in the Effect menu.

Fine Tune lets you add or subtract individual colours from the stencil.

The Tolerance edit field lets you click on a single colour in your picture and simultaneously lock (or unlock) all "similar" colours in the image. The Tolerance number determines how different a colour can be and still be considered "similar" to the one you clicked on. A low Tolerance number requires that the colours be very similar, while a high Tolerance number locks colours that may be very different from the colour you clicked. The range of Tolerance values runs from 0 to 48. At 0 tolerance, only colours that are identical to the colour you click on will be affected. At 48 tolerance, all colours will be affected.

Remake

When you have a stencil active and you apply colours to your picture, the colours you apply are not protected, even though they may be locked in the Make Stencil requester. You can lock newly-applied colours by bringing up the Make Stencil requester and clicking Make, or by selecting Remake from the Stencil submenu.

Brush >>

Use the options in the submenu to modify the current brush colours.

Bg ->Fg

Changes all pixels in the brush that are in the current background colour into the current foreground colour. This provides an easy method of making a global colour change — all instances of the background colour in the brush are changed to the current foreground colour. Because you can select any colour in the brush as either the foreground or the background colour at any time, you can make intricate colour changes easily. This operation affects the brush colours only and does not affect the picture or the order of colours in the palette.

Bg<->Fg

Swaps the current background colour in the brush with the current foreground colour. This is similar to the **Bg->Fg** option, except that the change occurs in both directions. The change affects the brush colours only and does not affect the picture or the order of colours in the palette.

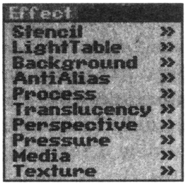
Remap

Use Remap when you load a brush that uses a palette different from the current palette. Remap looks at the colours used in the brush and tries to find the closest fit within the current palette. This option is different from Use Brush Palette in that it does not change the picture palette. Instead it changes the palette locations the brush looks at for its colours. You can perform this operation on AnimBrushes and all frames of the animated brush will be remapped.

Change Transparency

Lets you change the transparency colour of the currently selected brush to the current background colour.

Effect Menu



The Effect menu contains several special features. Its options let you create stencils, "freeze" the background, and define planes for drawing in perspective.

Stencil >>

Creating a stencil allows you to paint around an image without painting on it, as though it were protected by a frisket. Create a stencil of an image in either of two ways (painting and locking), or by using both ways together. You can "paint" an area to mask, see *Paint*, below, or "lock" the colours that comprise that image.

A stencil will also apply to the brush when it is captured. Whatever colours in the brush were locked when the stencil was made become transparent in the brush.

When you have a stencil active, an "S" appears in the Title Bar.

Show

Show dims the colours in your picture and displays the stencilled areas of your picture (if any) in a contrasting lighter colour. The "S" in the Title Bar changes to "s." You can't paint on your picture while Show is active. Click to return to your picture.

The lighttabled frames appear behind the current image (in the BG colour area) and can be dimmed to a darker colour in all screen format modes except HAM.

Merge

Merges all of the currently viewed images into the current frame, and turns off the LightTable so you can see the result as it actually appears.

WARNING!

❖ You cannot UNDO this Merge command

Dim

Keyboard Equivalent: Alt-l
When Dim is on, all frames displayed on the LightTable, except the current frame, appear dimmed. You can easily see at a glance, which frame you are working on. Dim is on by default. This option applies to all screen format modes except HAM.

❖ If you dim a frame that contains very dark colours, those colours may be difficult to see.

Layer 1–4

Keyboard Equivalent: Ctrl-1 to Ctrl-4
Shows/hides the frames defined for each Layer in the LightTable Settings requester (see below). If a layer is checked, it is shown; if it is not checked, it is hidden.

Settings...

Displays the LightTable Settings requester.

Layer: You can use these checkboxes to show/hide the four Layers just like selecting the Layers directly from the Effect>LightTable menu.

Frame: Define the frame associated with the Layer. 0 = spare page, 1 = next frame, -1 = previous frame, -2 = 2 frames back. etc.

Dim: Click this box to activate the current dim slider values.

< >: Click the left and right arrows (< >) to globally increase or decrease the dim values for all four Layers. Each mouse click moves the values up or down by 5 units. Alt-Click adjusts the values by 10, and Ctrl-Click adjusts the values by 1.

Sliders: The sliders set the dim values for each Layer. The dim value (-255 to 255) is the amount of black to add to the colours in the selected Layer. The larger the number, the darker the colours; the smaller the number, the lighter the colours. Zero leaves the colours unaltered. Adding a negative amount of black will make the colours lighter (i.e., add white).

Anim Lock: Click this checkbox to lock out any page that is not within the current animation play range. This will lock out the first frame of an animation if a layer is set to show the next frame (1) and the current frame is the last frame in the animation, or lock out the last frame of an animation if a layer is set to show the previous frame (-1) and the current frame is the first frame of the animation.

- ❖ If you have several animation frames and you make a stencil, DeluxePaint automatically remakes the stencil as you move from one screen to the next.

Paint

Keyboard Equivalent: Ctrl-s
Uses your current built-in or custom brush to paint the area you want stencilled. The image under the stencil will be displayed in a "half-tone" mode. When you've finished painting the stencil, choose Paint again to exit this mode and activate the stencil. Stencils you create using Stencil Paint are "area-based." Also, if you choose Make or Remake to create a "colour-based" stencil, your painted stencil is discarded.

Reverse

Has the same effect as clicking Invert in the Make Stencil requester (see *Make*, above).

On/Off

Keyboard Equivalent: ' (below Esc)
Toggles the stencil on and off. This maintains the stencil but turns it off temporarily so you can paint on the protected colours.

Free

Creating a stencil uses memory, even though you may have it turned off (see *On/Off*, above). Free deletes the stencil and unallocates the memory it was using.

Load...

Stencils can be loaded as separate items. They are full screen only, and can be loaded only to the position they occupied when they were created. In other words, you cannot create a page larger than screen size and load the stencil into the middle of the page. The Load requester works like all other Load requesters in the program (see *Load* in the Picture menu).

- ❖ When you load (or save) a stencil, you are loading (or saving) only a layer of data that indicates which pixels in your picture you can or cannot paint on. You are not loading settings for the Make Stencil requester. In other words, stencils you load are area-based, like the stencils you create in the Stencil>Paint mode. Area-based stencils do not apply across animation frames and are replaced by colour based stencils you subsequently create using the Make Stencil requester.

Save ...

You can save stencils just as you can any other file, such as pictures or brushes. The Save requester for stencils works like all other Save requesters in the program (see *Save* in the Picture menu). See the note above regarding the nature of the data you are saving when you save a stencil.

LightTable >>

On/Off

Keyboard Equivalent: l
Turns the LightTable on or off. The LightTable lets you see the animation frames that immediately precede and/or immediately follow the current frame (or the spare page), which gives you greater control while creating your animation. This effect simulates the "onion skin" techniques used by traditional animation artists. By using a combination of LightTable options, you can see a maximum of four frames simultaneously.

You can combine Translucency with any of the Process options to increase your control over the effect of these options. For example, Hue would normally directly substitute the hue of your brush for the hues in your picture. If you turn on Translucency with a setting of 50%, instead of substituting the hue directly, the resulting hue will be a 50/50 combination of the brush hue and the picture hue.

On/Off

Keyboard Equivalent: Alt-p
When you choose Process On a P appears in the middle of the Title Bar.

Tint (default setting)

The colour you are painting with tints the colour(s) underneath it in the direction of the colour you are applying. Use this option if you want to create a shading or tinting effect over a number of colours on the screen, or to colourise a black and white or greyscale image.

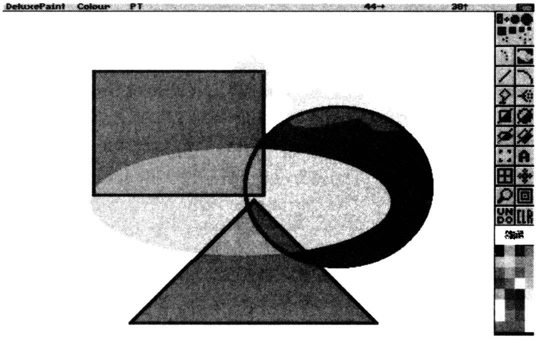


FIGURE 8.42 SHAPE PAINTED OVER OTHERS USING TINTED SETTING

Hue

Use this option with any painting tool to adjust the hue of a coloured area of your image. This option is useful for converting a multi-coloured image into a monochromatic image. Note that this option will have no effect on greyscale images because a colour with no Saturation is grey regardless of its hue.

Value

Use this option to paint the Value of the current brush into the colours in the image. This is an effective way to create shading effects. If you choose a light colour to paint with in Value mode, darker colours you paint on will become lighter. If you choose a dark colour to paint with, lighter colours will become darker.

Translucency >>

On/Off

Keyboard Equivalent: Alt-t
When you choose Translucency, a T appears in the middle of the Title Bar. Painting with Translucency on has the effect of laying a transparency or coloured filter over a portion of your picture. The transparency is tinted toward the current foreground colour. The degree of tinting is determined by the level (percentage) set in the Translucency requester (below).

Background >>

Fix

Fixes the background by “locking” the current picture. This allows you to draw on it without losing any of the background. You can erase any paint you apply after fixing the background by clicking CLR or by painting with the right mouse button.

❖ Fixing the background uses additional memory. When the background is fixed, no colours may be picked up from that background.

Free

This “unlocks” the background, and merges it with anything that was painted over it, so that clicking CLR will clear the entire picture. It also frees up the memory that was allocated to fixing the background.

Lock FG

The Make Stencil requester lets you create stencils based on colours in the palette. By locking a colour, you make it impossible to paint on that colour, wherever it may be on the page. By using a combination of Fix Background (see above) and Lock FG, however, you can define a stencil by area rather than colour. When you select Lock FG, you define as a stencil those areas on the page that you have painted since fixing the background, regardless of the colour of those areas.

Anti-alias >>

Anti-aliasing is a smoothing process which eliminates or reduces the jagged edges apparent in lines that aren’t precisely vertical or horizontal. The effectiveness of anti-aliasing is dependent on the range of colours in the palette. For example, to draw a smooth, oblique black line on a white background, you’ll need to have two intermediate shades of grey in the palette. Anti-aliasing works with straight and curved lines, and with filled and unfilled shapes, It is especially good at smoothing the jagged lines in a brush that result from rotating or shrinking it in Perspective mode.

None, Low, High

Keyboard Equivalent: Alt-/
Set the level of anti-aliasing used on your brush when you paint. None is the default setting and applies no anti-aliasing. Low lets you eliminate some of the jagged outline in your images and brushes. The cost of removing jagged lines is painting speed, but it is still faster than smoothing out an image by hand. To use anti-aliasing, select either Low or High before you lay down the brush image. Anti-aliasing is most effective when you have reduced the size of your original brush (for example, by moving it back along the Z axis). Anti-aliasing in the High setting can be very slow if your brush or fill area is large.

Process >>

❖ The effectiveness of the Process options is dependent on the colours available in the palette. DeluxePaint combines your foreground colour with the colour in your image and then looks for the colour in your palette that most closely matches the colour it needs. For best results, your palette should contain a range of colours between the colours in the palette and the colour you are using to tint. The Process options obviously give the best results in higher colour modes because all Amiga colours are available for painting.

Reset

Keyboard Equivalent: 0 on keypad
Resets the brush to its original state before rotation, and returns all of the settings in the Perspective Settings requester to their defaults (see *Settings*, below).

- ❖ Note: The keyboard equivalent does not reset the perspective centre. This is useful if you need to reset your brush to its original orientation without changing your perspective plane.

Centre

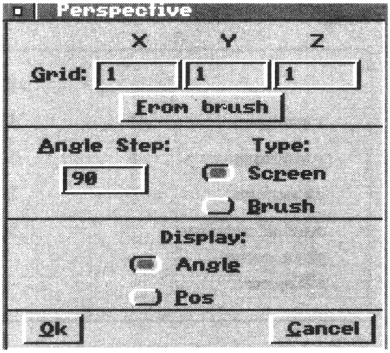
Keyboard Equivalent: . (period)keypad
Allows you to set the Perspective centre or horizon in your perspective "landscape."

- ❖ When you select Centre, your cursor changes into a large cross-hair. The smaller, stationary cross-hair on the screen indicates the existing centre. Move the large cross-hair to the new centre you want and click either mouse button.

Once you have set the Perspective centre, the position of the unrotated brush relative to that centre determines the position of the perspective plane when you rotate the brush. The greater the distance above or below Perspective centre, the less pronounced the perspective effect.

Settings

Displays the Perspective requester. When you are in Perspective mode, you can also display this requester by right-clicking the Grid tool.



Perspective

X Y Z
Grid: 1 1 1

Angle Step: 90

Type:
● Screen
○ Brush

Display:
● Angle
○ Pos

FIGURE 8.44 PERSPECTIVE REQUESTER

The following options are available:

Grid

You can use these edit boxes to set the dimensions for a grid in three-dimensional space. When you first open the requester, the numbers in these boxes correspond to the dimensions of your brush; the Z dimension automatically takes the same value as the Y dimension. It is important to remember that the entire brush size (not just the opaque part) is the default size for Perspective Grid and Perspective Fill.

Settings...

Keyboard Equivalent: Ctrl-t
Displays the Translucency requester. The default setting is 50%.

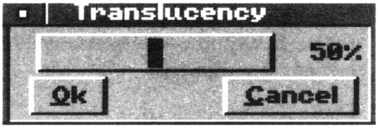


FIGURE 8.43 TRANSLUCENCY REQUESTER

To change the setting, click on either side of the slider , or drag the slider to a particular position. Click OK to confirm your new setting.

Here's an example of how Translucency works. Let's say you have a red object in your painting with the RGB values R: 15 (100%) G:0 B:0, and that blue (R:0 G:0 B:15 (100%) is your foreground colour. If you set the translucency level to 50% and painted over the red object, the resulting colour would be equal to 50% of the object's colour, red, and 50% of the foreground colour, blue. The RGB value of the resulting colour is R:7 (50%) G:0 B:7. If this colour (purple) is not in the current palette, the closest colour to this value will be used instead. Like the Process functions, Translucency give the best results in HAM mode.
The percentage value for translucency refers to the amount of the original object that will show through the newly applied foreground colour. For instance, in the above example if the translucency level was set to 75%, the resulting colour would be 75% of the existing colour in the painting, red, and 25% of the foreground colour, blue. The RGB value of the resulting colour would be R:11 G:0 B:3.

Translucency works with all the painting tools (except text, single pixel Airbrush, or the 3- and 5-pixel built-in brushes), and in combination with the **Process** options. By combining Translucency with **Tint**, for example, you can control the degree of tinting.

Perspective >>

The Perspective submenu contains options for manipulating a brush in three dimensions.

Do

Keyboard Equivalent: Enter (on keypad)
Puts you into Perspective mode. Your brush is represented by a four-cell matrix, which you can manipulate with keypad commands (listed later in this section). The amount of rotation for axes x, y, and z is given in degrees on the right side of the Title bar. The centre of perspective (see *Centre*, below) is indicated by a cross-hair. You can paint an image of the rotated brush at any time by clicking.

❖ To exit Perspective mode, click a tool in the toolbox or press Enter on the keypad.

FillScreen

Keyboard Equivalent: - (minus) keypad
Fills the screen with the current brush, in its current state of rotation in 3D. The entire brush size (not just the opaque part) is the default size for the Perspective Fill pattern.

Pressing Keypad 0 resets all three axes to zero and fixes the Z axis (see below), but retains the apparent distance settings. Pressing Keypad 0 in conjunction with the Shift key resets all perspective values to the default state.

Other Perspective Keyboard Commands

Ctrl temporarily fixes the Y axis so that you can move the brush forward or backward in 3D space by moving the mouse forward or backward.

The ; and ' keys move the brush plane forward or back along its fixed axis (see below) without changing its orientation, moving it in a direction perpendicular to the brush plane. This is the same effect described in the above discussion on brush position prior to rotation. Thus, with the Z axis fixed, brush position relative to the Perspective centre at the moment of rotation determines the brush's distance above or below eye level. You can achieve the same effect after the brush is rotated by using the ; and ' keys to move it forward or back along its Z axis.

Pressing these keys with the Shift key held down results in larger increments of movement. In addition, you can modify the apparent distance from the observer by pressing the < and > keys (i.e., the Shifted "," and "." keys). Thus, when the apparent distance is great, the perspective foreshortening is at a minimum, becoming greater as apparent distance decreases.

Fixing Axes: Whenever you start in Perspective mode, the Z axis (the one perpendicular to the screen) is "fixed," that is, the mouse does not move the brush through that axis. You can selectively fix any axis, as follows:

To fix the X axis, press Shift-9
To fix the Y axis, press Shift-6
To fix the Z axis, press Shift-3

As noted above, you can move along the axis that is currently fixed by using the Shifted or un-Shifted ; and ' keys (use the Shifted keys for larger increments). You can also temporarily fix the Y axis by holding down the Ctrl key.

Pressure >>

On/Off

DeluxePaint supports pressure-sensitive tablets (TriMedia, Inc. software driver required). When painting on canvas with a traditional brush, your strokes vary in colour intensity and width depending how hard you press the brush down. Pressure-sensitivity allows duplication of this effect, as well as other effects not possible with traditional media.

Settings...

Keyboard Equivalent: Ctrl-p
Displays the Pressure requester, and turns on pressure on exit.

From Brush

Clicking From Brush sets the X and Y grid values to correspond to the width and height of the brush. This is the quickest way to restore the perspective grid settings to the same dimensions as your brush without affecting any other settings.

Angle Step

⇧ Specifies the rotation increment used in conjunction with the Shift key and the appropriate keyboard rotation key (see *Perspective Rotations,* below). This value defaults to 90°.

Screen

The default setting, uses the screen coordinate system when rotating the brush on the x, y, and z axes. (If you are familiar with coordinate systems, you will know this coordinate system as the Euler method, which measures all three angles of rotation from absolute zero.)

Brush

Rotates the brush relative to the current brush coordinate system.

Display

The **Angle** and **Pos** buttons let you choose whether the angles of rotation or the position of the brush in three dimensional space are displayed in the Title Bar.

❖ If **Coords** from the Prefs menu is turned on, the Title Bar shows two dimensional coordinates; be sure to turn **Coords** off if you want to see three dimensional coordinates.

Perspective Rotations

All perspective rotations are controlled through the keypad on your keyboard.

	-1°	+1°	reset
x rotations	7	8	9
y rotations	4	5	6
z rotations	1	2	3
reset all rotations		0	
place centre		.	
FillScreen		-	

FIGURE 8.45 PERSPECTIVE ROTATION AND SETTINGS USING THE KEYPAD

⇧

	-Angle Step°	+Angle Step°	Fix Axis
x rotations	7	8	9
y rotations	4	5	6
z rotations	1	2	3
reset all settings		0	
place centre		.	
FillScreen		-	

FIGURE 8.46 PERSPECTIVE ROTATION AND SETTINGS USING SHIFT WITH THE KEYPAD

Texture >>

On/Off

Keyboard Equivalent: Right Amiga-t
This turns the current background texture on or off. If there is no texture, the Load Texture requester is displayed.

Load

Use standard ASL requester to load any IFF image as a background texture. For optimum effect, images should be tile-able and 16 colours or greater, but different effects can be achieved with even simple black and white or colour images. Only bitmap data for the selected file is read; any palette data associated with the file is ignored.

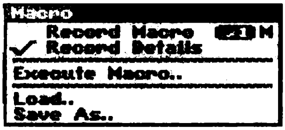
Invert

Keyboard Equivalent: Right-Amiga - I
Inverts the data of the current background texture.

Free

Clear the current background texture from memory.

Macro Menu



The Macro menu is a new menu that lets you record, load, save, assign, and execute ARexx macros. Macros enable you to save actions and then repeat them — you can even assign macros to function keys for easy access.

Record Macro

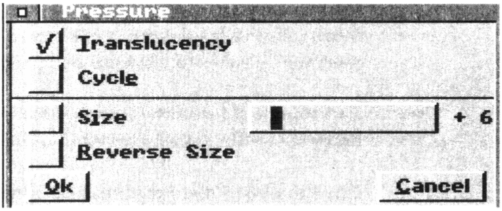
Keyboard Equivalent: Right-Amiga - M
When this check item is selected, DeluxePaint begins recording menu choices and mouse actions. When selected again to stop recording, the Assign Macro requester appears. Select one of the ten slots and press OK to assign the macro you've just recorded to a function key. Macros are kept in RAM:T until you save them.

Record Details

When this option is checked, all mouse drawing movements are recorded in the macro. When unchecked, only necessary mouse drawing movements are recorded. For instance, when unchecked, only the two endpoints of a straight line would be recorded. If checked all the mouse movement in between the two clicks to set the endpoints would be recorded, leading to a more complex macro file.

Execute Macro...

Opens an "Execute Macro" window in your default open ARexx macro directory. Choose an ARexx macro file, and press OK to execute the macro file immediately.



☑ Translucency

☐ Cycle

☐ Size + 6

☐ Reverse Size

FIGURE 8.47 PRESSURE REQUESTER

Translucency: When this option is on, your brush paints from the background colour to the foreground colour, so the order of light to dark changes depending on the background colour. For example, if your background colour is white and you're painting with a red foreground colour, your brush strokes change from light pink to red with increasing pressure. You can change the amount of translucency with the Translucency Settings requester. The higher the Translucency setting, the wider the variety of shades available for pressure.

Cycle: This option causes pressure to be translated into colour cycling using the current colour cycle range. The colour cycle range must have a cycle speed associated with it for this option to work.

Size: When this box is checked, the setting of the slider is used to modify the brush size (in pixels) depending on how hard you press on the tablet.

Reverse Size: Invert the Size modification so that pressing harder will *reduce* the brush size by the selected amount.

Pressing OK from the requester automatically turns Pressure on.

Media >>

Open

Use a standard open requester to open a Media Library file. Media Library files shipped with DeluxePaint (in the Media drawer) include chalk, felt tip marker, oil pastel crayon, and water-colour.

Media types and textures work together — in order to use a Media type, a texture must also be turned on. When both Media and Textures are turned on, you can duplicate natural drawing effects such as water-colour on paper oil on heavy canvas, etc.

The use of media and textures and their effects will vary depending on which colour you are using and what kind of effects you are using. Experiment with media types, translucency options, and colour modes to get different effects.

Close

Close the currently open Media Library file.

Fast FB

Fast feedback. Turn on Fast FB when working with large or complicated brushes while using the line or unfilled shape tools. Fast FB lets you draw your lines or shapes using the smallest (one-pixel) brush for feedback, and then completes the design using the currently selected brush. This increases response speed while you are drawing, but does not affect the final image.

MultiCycle

Works in conjunction with the **Cycle** paint mode from the Mode menu. With MultiCycle turned on, painting with a multicoloured brush in **Cycle** mode cycles each colour in the brush, provided the colour is in a cycle range. When MultiCycle is turned off (the default), using **Cycle** with a multicoloured brush treats the brush as though it were a single colour (the current foreground colour).

Be Square

Because the Amiga's pixels are not perfectly square, circles and squares drawn with the shape tools are not perfectly round or square. If you wish to draw "true" circles or squares, select Be Square. This will square all the built-in brushes, the appropriate shape tools, and symmetry. Be Square does *not* square gridding or perspective, and should be turned off when you are using those features.

Workbench

Toggles the Amiga Workbench on and off. Default setting is off.

ExclBrush

If you pick up a brush with ExclBrush (and the Grid) selected, you will exclude a one-pixel border on the right and bottom edges of your brush (see Figure 30). This is useful if your brush has a coloured border around it and you want to use the brush to create a pattern fill or perspective fill (using the Fill Type requester). When DeluxePaint creates your pattern, the border will be uniform throughout instead of being twice as wide where one copy of the brush is placed next to another.

❖ ExclBrush has no effect on brush pickup when the Grid is off.

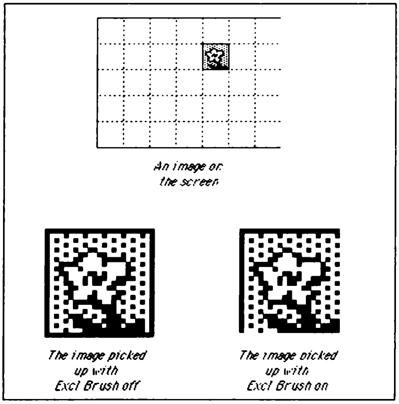


FIGURE 8.49 AN EXAMPLE OF USING EXCLBRUSH

Load...

Open a requester to simultaneously open a macro file and assign it to a function key.

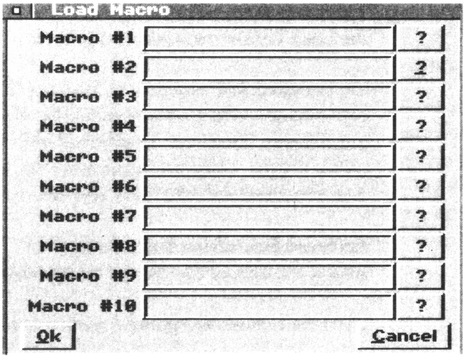

Load Macro
Macro #1 ?
Macro #2 ?
Macro #3 ?
Macro #4 ?
Macro #5 ?
Macro #6 ?
Macro #7 ?
Macro #8 ?
Macro #9 ?
Macro #10 ?
Ok
Cancel

FIGURE 8.48 LOAD MACRO REQUESTER

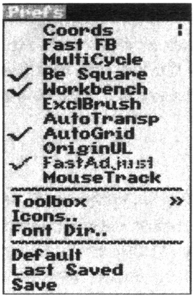
?

Click on the question mark next to a macro slot to bring up an open file requester. Select a macro file and press OK to load the macro in the macro slot.

Save As...

Opens a standard ASL "Save File" requester to save the macro currently in memory to an ARexx file.

Prefs Menu


Prefs
Coords !
Fast FB
MultiCycle
✓ Be Square
✓ Workbench
ExclBrush
AutoTransp
✓ AutoGrid
OriginUL
✓ FastAdjust
MouseTrack
Toolbox »
Icons..
Font Dir..
Default
Last Saved
Save

The Prefs menu contains a list of options that you can toggle on or off to suit your work habits. When you choose an option, a check mark (√) appears to the left of the option to indicate that it's turned on. Choosing the option again turns the option off and removes the √.

You can toggle multiple options by clicking on the option while the Prefs menu is exposed.

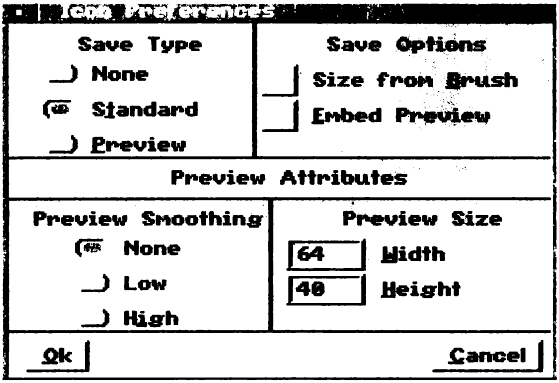
The **AutoGrid** is turned on by default for all DeluxePaint users. For artists using HAM screen format, **FastAdjust** is also turned on by default.

New additions to the menu allow you to save and restore your default preferences to and from disk.

Coords

Keyboard Equivalent: Shift-\
This option turns on the coordinate display in the upper right-hand portion of the Title Bar. Simply moving the mouse displays the current position of the cursor, with the origin (0, 0) set to the lower left corner of the screen. Holding down either mouse button temporarily resets the origin to the current cursor position and displays the displacement value from that temporary origin as you move around the screen. The readout is scaled in pixels. See also *OriginUL*, below.

Airbrush...	Keyboard Equivalent: Alt-A Displays the Airbrush Settings requester.
Grid...	Displays the Gridding requester.
Symmetry...	Displays the Symmetry requester.
Icons...	Opens the Icon Preferences requester for setting icon options for files created with DeluxePaint. Icons are saved using the current workbench palette settings. Your results will vary depending on your workbench settings.


Icon Preferences

Save Type
○ None
● Standard
○ Preview

Save Options
☐ Size from Brush
☐ Embed Preview

Preview Attributes

Preview Smoothing
● None
○ Low
○ High

Preview Size
64 Width
40 Height

FIGURE 8.50 ICON PREFERENCES REQUESTER

Save Type	None: Files are saved without any icon information. Standard: Files are saved with standard DeluxePaint icon. Preview: A miniature version of the picture is created and used as the file icon.
Save Options	Size from Brush: Uses the custom brush dimensions to save the Icon Preview. Embed Preview: This option saves the preview to the file. If a Save Type of Preview is selected, a preview is saved as an icon as well.
Preview Smoothing	Set the anti-aliasing options for the preview icon to None (no smoothing at all), Low (some smoothing), or High (maximum smoothing). Smoothing only takes effect in non-HAM modes.
Preview Size	Set the icon preview size in pixels. Icon sizes are limited from 20x20 to 320x200 pixels.
Font Dir...	Displays a requester you can use to select a different font directory than the default Amiga font directory.
Default	Resets DeluxePaint's preference settings to the factory defaults.

AutoTransp

Modifies the way brush pickup works. With AutoTransp turned on, DeluxePaint determines the transparent colour by looking at the corners of the capture rectangle or the points of the polygon to see if they are the same colour. If the four corners are the same colour, that colour becomes the transparent colour, otherwise the current background colour remains the transparent colour.

AutoGrid

With AutoGrid turned on, the perspective grid is resized automatically to match any custom brush you choose to load or pick up. It's as if you had clicked the From Brush action button in the Perspective requester. When AutoGrid is off, the perspective grid is not automatically resized.

❖ This option affects *only* the grid in Perspective, not the standard grid.

OriginUL

When **Coords** from the Prefs menu is on, DeluxePaint displays the current position of the cursor on the right side of the Title Bar. By default the program calculates the origin, or zero point of coordinates (0, 0) of the cursor position from the lower left corner of the screen. If you would rather have the origin calculated from the upper left, choose OriginUL. To return to the default origin, choose OriginUL again.

FastAdjust

This option is available only in HAM mode, where it is turned on by default. FastAdjust tells DeluxePaint NOT to attempt to correct the fringing effects that appear along the right side of your brush while the brush is moving. This improves the speed of brush movement and is especially helpful if you are using large custom brushes. If you find the fringing to be annoying or difficult to work with, turn FastAdjust off, and the fringing will be reduced.

MouseTrack

This check option is available only on Amigas with a 68020 CPU or greater. When MouseTrack is on, DeluxePaint buffers your mouse movements during freehand drawing so that your lines look smoother.

Toolbox >>

This submenu allows you to open requesters for the various toolbox items directly from the menu rather than right-clicking on the toolbox icons. See the *Tools* section for an explanation of the requesters.

Fill...

Keyboard Equivalent: F
Displays the Fill Type requester.

Spacing...

Keyboard Equivalent: V
Displays the Spacing requester.

Fonts...

Keyboard Equivalent: T
Displays the Choose Font requester.

Axis Rotation

When you are in Perspective mode, the rotation of the selected shape about each axis (x, y, and z, respectively) appears in the right corner of the Title Bar. The axis rotation information is superseded by the cursor coordinates if you turn on Coordinates in the Prefs menu.

Coordinates

When **Coords** is active, the coordinates of the cursor position are displayed in the right corner of the Title Bar.

Memory Availability

Press the Ctrl key and the letter a at the same time to display available Fast memory/Chip memory in the left corner of the Title Bar. See ***Appendix A*** for information on DeluxePaint's memory usage.

Startup Tooltypes

The tooltype options listed in the following section allow you to specify program defaults. You can specify startup tooltypes using the options in the following sections with the Information requester, accessible through the DeluxePaint V icon and Workbench menus at the Workbench screen. Most of these tooltypes can be saved directly out of DeluxePaint V from either the Prefs menu or the Screen Format requester.

Preference Tooltypes

These tooltypes correspond to your menu choices in the Prefs menu. Tooltypes are in brackets () if unchecked or off.

AutoGrid
FastAdjust
Be Square
Coords
Fast FB
MultiCycle
Workbench
ExclBrush
AutoTransp
OriginUL
MouseTrack

Icon Tooltypes

These tooltypes correspond to the icon preferences.

IconSizeFromBrush (Default=off)
IconSaveType= <None|Standard|Preview> (Default=Standard)
IconSmoothType= <None|Low|High> (Default=None)
IconSize= <Width, Height> Min=20,20 Max=320x200
IconEmbedPreview (Default=off)

Macro Tooltypes

Macro1...10= <path:arexx filename> (Example: Macro1=progdir:rexx/animate.dprx)

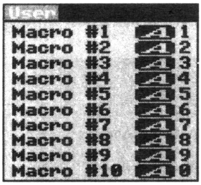
Last Saved

Restore the preference settings from the last time they were saved as tooltypes.

Save

Save current preference settings as tooltypes to the DeluxePaint program's icon. In addition, the program saves the current Directories for Picture, Brush, Anim, Palette, Animbrush, Stencil, Texture, and Media as your default directories, and saves the currently assigned macro files.

User Menu



Keyboard Equivalent: *A*-1 to *A*-0 execute user macros 1 to 10.
This menu allows you to execute one of the ten macro files DeluxePaint can store at one time.

User Feedback in the Title Bar

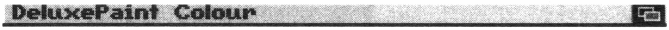


FIGURE 8.51 TITLE BAR

Painting Mode

Displays the current painting mode (Matte, Colour, Replc, Smear, Blend, Cycle, Smooth) beside the program title [DeluxePaint] on the Title Bar. See Mode menu, above, for information on painting modes.

Colour Fill Box

Displays the currently selected fill pattern, or perspective fill or gradient fill in a small box in the middle of the Title Bar. This box previews the pattern or gradient you'll get when you fill a shape. The Colour Fill Box is absent if your Fill Type is set to Solid. See discussion under Fill tool, below, for more information on the Fill Type requester.

A	Appears in the middle of the Title Bar when **Antialias>High** is selected from the Effect menu.
a	Appears in the middle of the Title Bar when **Antialias>Low** is selected from the Effect menu.
B	Appears in the middle of the Title Bar when the *background is fixed.*
P	Appears in the middle of the Title Bar when you have selected one of the Process options (Tint, Hue, Value) from the Effect menu. **Process>None** does not display the P.
S	Appears in the middle of the Title Bar to show a Stencil is active.
s	Appears in the middle of the Title Bar when a Stencil is active, and **Stencil>Show** or **Stencil>Paint** is selected.
T	Appears in the middle of the Title Bar when **Translucency** from the Effect menu is turned on.

APPENDIXES

Display Tooltypes

These tooltypes are saved only from the screen format requester.

DefaultPattern=<Pattern Matching> (Example: DefaultPattern=NTSC#?HAM)
DisplayModeId (Default=off)

Assign Tooltypes

AnimDir= <Path:Drawer Name> (Default=DPaintV:Anim)
AnimBrushDir= <Path:Drawer Name> (Default=DPaintV:AnimBrush)
BrushDir= <Path:Drawer Name> (Default=DPaintV:Brush)
MoveDir= <Path:Drawer Name> (Default=DPaintV:Move)
PaletteDir= <Path:Drawer Name> (Default=DPaintV:Colours)
PictureDir= <Path:Drawer Name> (Default=DPaintV:Picture)
StencilDir= <Path:Drawer Name> (Default=DPaintV:Stencil)
TextureDir= <Path:Drawer Name> (Default=DPaintV:Textures)
MediaDir= <Path:Drawer Name> (Default=DPaintV:Media)

Advanced Tooltypes

Advanced Tooltypes are not saved by the program.

NoKeyPad (Default=off)

NOTE If this tooltype is on for an A600 machine, pressing CAPS LOCK activates an alternate keymap that enables Perspective keyboard commands.

AutoInfoPanels (Default=off)
ToolLimit=<Min X>, <Min Y>, <Max X>, <Max Y>

<Min X> is the position of the left edge of the Anim Control Panel. It accepts values between -1 and 49.
<Min Y> is the position of the top of the Anim Control Panel.
<Max X> is the position of the right edge of the Toolbox. It accepts values of 320 and higher.
<Max Y> is the position of the bottom of the Anim Control Panel. It accepts values of 200 and higher.

Language=français (Uses the foreign language catalog)
DeluxePaint V shps with both Français (French) and Deutsch (German) strings.

☐ The Standard airbrush uses a little more memory than 1 bitplane for the screen mode you are currently using.

Other things that require memory are loading the disk directory, loading the system fonts, and creating a fill pattern from a brush.

Animation and Memory Management

You've probably discovered that animation requires a lot of memory. And the two animation methods, **Expanded** and **Compressed,** have different memory requirements.

The Expanded method of animation requires that there be enough memory to duplicate the entire screen for every frame. So if you are in 320x200 32 colours, which takes 40K per screen, you'll need 800K to get 20 frames.

Memory requirements for animation in the Compressed mode is based on the difference between each animation frame. The more a frame is different from the one before it, the more memory will be needed to store it in memory and on the disk. The frame that requires the minimum amount of memory is simply a copy of the frame before it. The maximum amount of memory is required when every pixel in a frame is a different colour than in the frame before it.

It's possible to set the number of frames to a large number and then, in the course of painting on the different frames, run out of memory. What is happening is that you are increasing the amount that the frames differ from each other. When this happens you'll see a message that explains that you don't have enough memory to save the changes you're making.

What If You Run Out of Memory

Eventually everyone gets in a situation when they run out of memory. The first thing you should do when you get messages saying "Not enough memory" is to ***save your work***. The following is a list of things you can do to get a little more memory to finish your work.

☐ Close the WorkBench from the Prefs Menu.

☐ Delete your Spare page.

☐ Delete your custom brush by choosing **Brush>Free** from the Brush menu.

☐ If you have an AnimBrush, choose **AnimBrush>Free** option from the Anim menu to free it.

☐ If you have a stencil, choose **Stencil>Free** from the Effect menu to free it.

☐ If you have an animation, delete some frames.

☐ If you have an open Media library, close it.

☐ If you have a texture in memory, free it.

Appendix A: Memory Management

The amount of memory available varies from machine to machine depending on the machine model, amount of RAM installed, version of the operating system, the screen mode and colour depth you're working in, floppy drives connected, ARexx, and tablet support. You can measure available memory by selecting **About** from the Picture menu (or by pressing Ctrl-a) any time you need a memory check. DeluxePaint will warn you when you have insufficient memory to accomplish a task, or when you run the risk of losing data.

Memory shortage is manifested in various ways. For example, if you are at the limits of available memory and you select a large brush, DeluxePaint conserves memory by displaying just the outline of the brush. When you paint with the brush the image will appear on the screen in the normal fashion, even though it may not be visible as you move the brush around the screen. When this happens and your brush is not larger than the screen and the **Brush Frame Only** option is not checked, consider it a sign that available memory is low. In that case, you should take some action to reallocate memory (for example, by deleting the spare page or by removing any stencils, see below), or at least to save your current image or animation to disk.

Here are some of the ways DeluxePaint V consumes memory:

☐ Increasing the amount of change in an animation *after* you've allocated frames for animation (see below for further discussion).

☐ Creating and holding a large brush. When you see just the outline of the brush (and your brush is not larger than the screen and the Brush Frame Only option is not checked) this is a sign that you are near the edge of your memory limits.

☐ Creating and holding a large AnimBrush.

☐ When your spare page is active, it uses up as much memory as the first page even if you cleared the image from it. You can regain the memory used by the spare page (40K or more) by selecting **Delete This Page,** while viewing the spare page, from the Picture menu.

☐ You use memory by leaving the WorkBench open while you work DeluxePaint. The WorkBench can be opened and closed through the Prefs menu. The WorkBench can only be closed if there are no other custom screens open.

☐ Creating a stencil uses up one bit plane. The exact amount of memory used depends on the screen format and page size you've selected. Fixing the background has a much larger overhead, similar to that required by a spare page.

☐ AnimBoard printing requires slightly more memory than the currently displayed page for printing.

☐ Multiple Palettes can use as little as .25K per Palette (in black and white modes) to a little over 1K per Palette in 256 colour modes.

Appendix B: Keyboard Command Summary

Brush Commands

F1	Matte
F2	Colour
F3	Replc
F4	Smear
F5	Shade
F6	Blend
F7	Cycle
F8	Smooth
-	Brush smaller
_	Custom brush smaller by 2 steps
=	Brush larger
+	Custom brush larger by 2 steps
Alt-n	Copies custom brush to spare brush
Alt-b	Swaps current and spare custom brush
Alt-m	Morph from spare to current custom brush
Z	Stretch/shrink (size)
h	Halve
H	Double
X	Double horizontal
Y	Double vertical
x	Flip horizontal
y	Flip vertical
z	90 Degree rotate
o	Edge>Outline
O	Edge>Trim
Alt-x	Rotate brush handle through 4 corners and centre
Alt-z	Place brush handle
Right Amiga-b	Load brush
Right Amiga-c	Copy brush from Clipboard
Right Amiga-v	Paste brush from Clipboard
Alt-f	Toggle brush frame only on/off

☐ Reduce your page size if it is larger than the screen.

☐ Work with the minimum number of colours that you can to achieve the effect that you want. Choose the screen format you are working with and reduce the number of colours.

❖ If you receive the System Message "Not enough memory for requested page size" when you try to change the Deluxe Paint V screen format from one to another, you may be experiencing memory fragmentation. To solve this problem, either reset the screen format from the **Screen Format** option in the Picture menu, or quit the program and restart DeluxePaint V fresh in the mode you wanted.

Special Keys

?	Display About/memory info box
Delete	Cursor arrow on/off
F9	Menu Bar on/off
F10	Toolbox and Menu Bar on/off
Shift-F10	Hide all panels (Toolbox, menu, etc.)
Alt-F10	Show panels
Cursor keys	Scroll Page (except in text mode)
Ctrl-Cursor Keys	Adjust Screen positioning (Adjusts the position of Mixer, Arrange Palette, and Range panels when the cursor is over the panel)
n	Centres area under the cursor
Shift	Constrain cursor
Ctrl	Leave traces with line or shape tools
Ctrl-a	Displays available Memory in the menu bar
Tab	Colour Cycle on/off
S	Show page
Ctrl-S	Toggle Paint Stencil mode
~ (Tilde)	Make Stencil
` (Grave)	Stencil on/off
a	Again key — repeats last menu command
| (Shift-\\)	Coords on/off
Spacebar	Cancel operation in progress
Esc	Stop operation in progress
j	Spare page
Ctrl-j	Copy to Spare
Alt-/	Step through Antialias settings
Help	Selects Freehand tool and single pixel brush
Ctrl-P	Pressure settings requester
Right Amiga-t	Texture on/off (if no texture loaded, activates Load Texture requester)
Right Amiga-i	Invert texture
Right Amiga-m	Start/Stop macro record
Right Amiga-1 – 0	User macro keys
Right Amiga-p	Print
Right Amiga-q	Quit
Right Amiga- - (minus)	Delete current page
Right Amiga-l	Load Picture requester
Right Amiga-s	Save Picture requester
Right Amiga-d	Delete Picture requester

Toolbox Commands

A	**Cycle Airbrush Type**
Alt-A	Airbrush Settings requester
b	Brush Selector
B	Restore last custom brush/AnimBrush
c	Unfilled Circle
C	Filled Circle
i-c	Filled and Outlined Circle
d	Continuous Freehand
D	Filled Freehand
i-d	Filled and Outlined Freehand Shape
e	Unfilled Ellipse
E	Filled Ellipse
i-e	Filled and Outlined Ellipse
f	Fill
F	Fill requester
g	Grid on/off
G	Grid on/off using current brush handle position as a grid point
K	CLR (clear screen)
m	Magnify on/off
p	Palette Mixer requester
P	Arrange Palette requester
q	Curve
r	Unfilled Rectangle
R	Filled Rectangle
i-r	Filled and Outlined Rectangle
s	Dotted Freehand
t	Text
T	Choose Font requester
u	Undo
v	Straight Line
V	Line Spacing requester
w	Polygon
W	Filled Polygon
>	Increase magnification
<	Decrease magnification
,	Dropper colour cursor
.	One-pixel brush
[,]	Change foreground colour
{, }	Change background colour
/	Toggle Symmetry on/off

Move and Camera Move Adjust Commands
(CONTINUED)

Shift Keypad **0**	Reset all axes, positions, and settings
Shift Keypad **9**	(Move only) Fix X axis
Shift Keypad **6**	(Move only) Fix Y axis
Shift Keypad **3**	(Move only) Fix Z axis
Keypad "." (Period)	Reset Centre
; and ' keys:	Moves the brush along its fixed axis in a direction perpendicular to its plane
Shift ; and ' keys (: and ")	Same as ; and ' keys but with greater increment
< (Shift .) and > (Shift ,)	Modify observer distance from screen
Ctrl	Temporarily fixes the Y axis so you can move your brush on the x and z coordinates

Animation Keys

1	Step to Previous Frame
2	Step to Next Frame
3	Display the Go To Frame requester to jump directly to a specific frame
4	Play Animation continuously until Spacebar or mouse button is pressed
5	Play animation once
6	Play animation in ping-pong mode
7	Step to previous AnimBrush cel
8	Step to next AnimBrush cel
Shift-1	Go to first frame
Shift-2	Go to last frame
Shift-3	Go to last frame you did a "go to" to
Shift-4	Play animation continuously in reverse direction
Shift-5	Play animation sequence once in reverse direction
Shift-7	Go to first AnimBrush cel
Shift-8	Go to last AnimBrush cel
Spacebar	Stop the currently playing animation sequence
r	Reverses animation sequence while playing
Left Arrow	Slows down animation while playing
Right Arrow	Speeds up animation while playing
Alt	Held down while painting, turns on Animpainting mode
M	Move requester
N	Camera requester
Right Amiga-o	Load Anim
Right Amiga-a	Save Anim
Ctrl-f	Copy frames
Right Amiga-r	Set frame rate

Colour Controls

Ctrl-r	Range requester
Alt-r	Reverse direction of range
Alt-] and Alt-[	Step forward/backward through available ranges
Alt-t	Translucency On/Off
Ctrl-t	Translucency Setting requester
Alt-p	Process On/Off (Tint is default)
p	Colour Mixer requester
P	Arrange Palette requester

Perspective Commands

Enter	Enter/Exit perspective mode
Keypad 7 and 8	Rotate about the X axis
Shift Keypad 7 and 8	Rotate X axis by Angle Step
Keypad 9	Reset X axis to 0°
Keypad 4 and 5	Rotate about the Y axis
Shift Keypad 4 and 5	Rotate Y axis by Angle Step
Keypad 6	Reset Y axis to 0°
Keypad 1 and 2	Rotate about the Z axis
Shift Keypad 1 and 2	Rotate Z axis by Angle Step
Keypad 3	Reset Z axis to 0°
Keypad 0	Reset all axes to 0°
Shift Keypad 0	Reset all axes, positions, and settings
Shift Keypad 9	Fix X axis
Shift Keypad 6	Fix Y axis
Shift Keypad 3	Fix Z axis
Keypad "-" (Minus)	Fill the screen with the current brush at the current perspective
Keypad "." (Period)	Reset Centre
; and ' keys:	Moves the brush along its fixed axis in a direction perpendicular to its plane
Shift ; and ' keys (: and ")	Same as ; and ' keys but with greater increment
< (Shift .) and > (Shift ,)	Modify observer distance from screen
Ctrl	Temporarily fixes the Y axis so you can move your brush on the x and z coordinates
\	Toggle Angle/Position display

Move and Camera Move Adjust Commands

Enter	Enter/Exit Adjust mode
Keypad 7 and 8	(Move only) Rotate about the X axis
Shift Keypad 7 and 8	(Move only) Rotate X axis by Angle Step
Keypad 9	(Move only) Reset X axis to 0°
Keypad 4 and 5	(Move only) Rotate about the Y axis
Shift Keypad 4 and 5	(Move only) Rotate Y axis by Angle Step
Keypad 6	(Move only) Reset Y axis to 0°
Keypad 1 and 2	(Move only) Rotate about the Z axis
Shift Keypad 1 and 2	(Move only) Rotate Z axis by Angle Step
Keypad 3	(Move only) Reset Z axis to 0°
Keypad 0	Reset all axes to 0°

Appendix C: The Player Utility

The DeluxePlayer utility on the Program disk lets you play the animations you have created with DeluxePaint V. You can boot the utility from the Workbench or use CLI arguments to start DeluxePlayer. This version of DeluxePlayer will display any ILBM or op5/op8 Anim from hard disk or memory. It supports AGA, multiple palettes, colour cycling, pictures, AnimBrushes, ARexx and several new options.

- From the Workbench, open the Program disk and double-click on the DeluxePlayer icon. This loads the program in the default screen format (lo-res, 320 x 200, with 32 colours) and displays an Open File requester.
- From the Open File requester, specify which drive you want to make active and then load a picture or anim from the directory of the drive you choose.
- To play, choose a play mode from the Play menu.

The DeluxePlayer Menu Bar does not display automatically. To see the utility's menu, move the pointer to the upper left part of the screen and press the right mouse button. Project, Play, and Prefs appear in the Menu Bar.

Menus

The DeluxePlayer menus are described below.

Project menu

The **Project** menu lets you load and work with files.

Open

Keyboard Equivalent: Right Amiga-O
The **Open** command brings up the Open File requester. Specify which drive you want to make active and then load a picture or anim from the directory of the drive you choose. Multiple file loads are allowed.

Next

Keyboard Equivalent: Right Amiga-N
The **Next** command displays the next loaded anim when multiple anims are loaded.

Last

Keyboard Equivalent: Right Amiga-L
The **Last** command displays the previous loaded anim when multiple anims are loaded.

Play

Keyboard Equivalent: Right Amiga-P
The **Play** command loop plays the anim forward. See *Loop Forward* below.

Info

Keyboard Equivalent: Right Amiga-I
Info displays information about the current frame displayed.

Animation Control Panel

Alt-a	Anim Control Panel on/off
l	LightTable on/off
Alt-l	LightTable Dim on/off
Ctrl-1	Layer 1
Ctrl-2	Layer 2
Ctrl-3	Layer 3
Ctrl-4	Layer 4
Alt-=	Adds one frame
Right Amiga—	Delete current frame
Ctrl-l	LightTable settings requester

Holding down the Ctrl key while clicking on the following control panel icons will bring up the associated requesters:

Add Frame (+)
Delete Frame (-)
Goto Frame (→•)
LightTable (light bulb)

Prefs Menu

The Prefs menu contains options to customise the operation of DeluxePlayer.

Play Anim...

From Memory	Plays the animation from memory.
From Hard Disk	Plays the animation from the hard disk.

The size of the animation is only limited by the amount of free space on the hard disk.

Play Style...

Style of play when playing animation from memory.

Forward & Backward	The standard animation play model.
Forward (Fast !)	Allows faster play by loading the file for forward play only.

Memory Model...

Large	The standard memory setting.
Small	Sets memory usage to minimum settings. Use this setting if your machine has limited memory.

Show Speedometer

Keyboard Equivalent: s
Displays a meter that indicates the frame rate of the animation. Shift-s changes display to indicate an average frame rate.

Show Loading

Keyboard Equivalent: Right Amiga-B
Displays frames as they are loaded

Set Rate...

Keyboard Equivalent: Right Amiga-R
Opens a requester that lets you set speed in frames per second to play the current animation. The default setting uses the setting the animation was saved with. Vary by frame plays the animation using its variable rate per frame info.

Using DeluxePlayer from CLI or the Shell

DeluxePlayer can be run from the CLI or Shell, open the CLI or Shell from the Workbench. On the command line type `cd dpaintv:` and press Return.

This will change the current directory to the drawer or disk where the DeluxePlayer utility is located. At the next prompt, type `dplayer` (add a space) and the complete path and filename of the picture or anim you want to load. For example, if you wanted to load the animation called "walk.anim" from DeluxePaint's Anim drawer , you would type the following:

```
dplayer File dpaintv:gallery/walk.anim <enter>
```

NOTE For clarity, commands in these examples are capitalized, but that is not necessary. DeluxePlayer commands are not case sensitive.

About

Keyboard Equivalent: Right Amiga-?
About displays the program version and date.

Quit

Keyboard Equivalent: Right Amiga-Q
To exit DeluxePlayer and return to the Workbench, choose **Quit**. For a quick exit, click the mouse in the upper left corner or press Ctrl-C.

Play Menu

The **Play** menu contains various play commands. DeluxePlayer uses the same keyboard commands as DeluxePaint V to play animations.

Previous Frame

Keyboard Equivalent: 1
Moves the display back one frame.

Next Frame

Keyboard Equivalent: 2
Moves the display ahead one frame.

Loop Forward

Keyboard Equivalent: 4
Plays the anim continuously . This is the normal playback mode. You can stop the animation by pressing the space bar. (You can reverse the direction of playback by pressing the **r** key on the keyboard while the animation is playing.)

Once Forward

Keyboard Equivalent: 5
Plays the animation sequence once through from Frame 1 to the last frame.

Ping Pong

Keyboard Equivalent: 6
Plays the sequence forward then backward.

First Frame

Keyboard Equivalent: !
Sets the animation to frame 1.

Last Frame

Keyboard Equivalent: @
Sets the animation to the last frame.

Loop Backward

Keyboard Equivalent: $
Plays the anim continuously in reverse.

Once Backward

Keyboard Equivalent: %
Plays the animation sequence once through from the last frame to frame 1.

DeluxePlayer uses the same keyboard commands as DeluxePaint V to control to view your animation.

KEY	EFFECT
Tab	Turns colour cycling on/off
Left Arrow	Slows down play rate
Right Arrow	Speeds up play rate
r	Reverses play direction
Esc or Space bar	Stops play

The following command switches will preset the corresponding option in DeluxePlayer. Some of these options are only available via the command line.

> pd=PlayDisk/S, pf=PlayFast/S, sm=SmallMem/S, ac=AutoCycle/S, sc=Script/S, lp=Loop/N, sec=Time/N, dl=Delay/N, sl=ShowLoad/S, v=VariSpeed/S, nr=NoRequest/S, i=Inherit/S

Deluxe Player Commands

Command	**Meaning**
PlayDisk	Play from disk only
PlayFast	Load and play forward only
SmallMem	Load time is slower, but may use less memory
AutoCycle	Cycle anim after loading
Script	Load script, w/lines of Player arguments
Loop	# of times to play anim
Time	# of seconds to play anim
Delay	# of seconds to delay after loading
ShowLoad	Display Anim frames while loading
VariSpeed	Play using variable rate per frame info
NoRequest	Suppress initial load requesters
Inherit	Set defaults to Tooltype icon settings

If you hit the *space bar* or click while a picture or anim is running, the program will move to the next command, even if the specified play-time has not elapsed.

File names with blanks must be enclosed in quotation (" ") marks.

A command line starting with a semicolon (;) is ignored.

Rexx Support

For general information about ARexx, refer to ***Appendix F.***
Notice: ARexx is an advanced programming language that can be used to write macro scripts. Scripting is only recommended for expert computer users. The ARexx command set and examples listed in this section are specific only to DeluxePlayer operations, and are intended for use by those experienced in ARexx scripting. Electronic Arts does not offer technical customer support for ARexx scripting issues. For more information please consult the ARexx portion of your system's documentation (Amiga DOS 2.04 or greater).

The ARexx port is named 'DeluxePlayer1'.
These are the ARexx commands used by DeluxePlayer. Modifiers in braces are required (PROJECT OPEN <filename>). Arguments separated by bars ("|") are individual choices. Only one item from the list can be used at a time and only one command per line is allowed. State commands, like

If you want to show the anim for a certain number of seconds, press the *space bar* and type that number after the filename. For example, to play the anim "walk" for five seconds type:

```
dplayer File dpaintv:gallery/walk.anim Time 5
<enter>
```

If you would like to indicate that the number is a loop count instead of time in seconds, press the *space bar* and type the number of loops you want to run. Press the *space bar* again and type `loops`. For example, to play five loops of "walk" type:

```
dplayer File dpaintv:anim/walk.anim Loop 5
<enter>
```

You're now ready to issue player commands for your animation (or you can press Return right now and your animation will play and take you back to the CLI when it's finished).

You can also issue commands to DeluxePlayer from a script file. Script files are ASCII text files from which commands are read. They are created with a text editor such as ED or EMACS included with Workbench.

To instruct the DeluxePlayer utility to read commands from a script file (we'll call the filename TEST) type:

```
dplayer Script File TEST
```

A sample script where files are stored in a drawer called **work** would look like this:

```
File DH1:work/File1.anim Playdisk
File DH1:work/File2.anim Loop 2
File DH1:work/PictureFile Time 5
```

Play Commands from CLI or Shell

Here are some sample commands and their meanings.

Command	**Meaning**
dplayer	Load DeluxePlayer
dplayer File (path & filename)	Open and/or play file
dplayer (path & filename) Time 10	Open and/or play file for 10 seconds and exit back to CLI or Shell
dplayer (path & filename) Loop 20	Open and play file for 20 loops and exit back to CLI or Shell
dplayer Script TEST	Read commands from script file "test"

Appendix D: Amiga Display Modes

DeluxePaint V supports all of the built-in Amiga graphic display modes — low resolution, high resolution, extra-Halfbrite, and hold and modify. You don't need to know much about the different display modes to create great art with DeluxePaint V. But some understanding of how the display modes work, and in particular, how they affect the number of colours available in the palette, can help you work more effectively.

This appendix explains how a pixel derives its colour, and how the display mode and the number of bit planes determine the number of colours available in the palette. We've tried to avoid overly technical explanations, but the material is still very technical. If you don't understand everything you read here, don't be discouraged, just remember that you don't really need to know this.

What Is a Bit Plane

A bit plane can be thought of as a flat grid of dots — a plane of dots, where each dot represents a bit. So when we say "bit," think dot.

If you look ahead to Figure D-1, you'll see that we drew the bit planes as flat surfaces. The best way to think of this surface is as a flat grid behind your computer screen. (This isn't actually how it works, but it may help you visualise how the colours are assigned to pixels.) The grid is the same dimensions as your screen resolution. For example, if your screen is 320 pixels wide and 200 pixels high, each bit plane is also 320 x 200 bits.

Bit Planes and Available Colours

Now imagine that each dot is either filled in or it's not. If the dot is filled in, it has a value of 1 and is said to be "on." If it is not filled in, the dot has a value of 0 and is said to be "off." In the simplest case of a display mode with only one bit plane, the picture can have only two colours. A pixel is one colour if its corresponding bit is on or a different colour if the bit is off.

The bit planes themselves don't determine the colour of the pixel, they simply determine which colour register the pixel looks to for its colour. With a single bit plane, the pixel points to either Colour 0 or Colour 1. If you add another bit plane behind the first, the number of possible colour registers doubles to four. Each additional bit plane doubles the number of colours again. The colour register contains the numbers for the amount of red, green, and blue in the colour.

Low Resolution and High Resolution Display Modes

Figure D-1 illustrates how the bit planes determine which colour register a pixel points to in Low Resolution display with five bit planes. Take a look at this figure for a moment. Notice that we've numbered the bit planes 0 through 4. Notice also that the number of each bit plane corresponds to the power of two by which each bit plane value is multiplied. For example, the cycle, that are sent by themselves and return a Return Code of 0 or 1 to indicate their state.

Commands

```
CYCLE ON | OFF
GETFRAME                  Returns current frame #
PLAY BACKWARD [ONCE]
PLAY FIRST | LAST | NEXT | PREVIOUS
PLAY FORWARD [ONCE] [PINGPONG]
PROJECT  LOAD | PLAY | ABOUT | INFO | QUIT
PROJECT OPEN <filename>
SETPREF FRAMERATE [FPS]
SETPREF MEMORY <LARGE | SMALL>
SETPREF PLAYANIM <RAM | DISK)
SETPREF PLAYSTYLE <LOOP | FAST>
SETPREF SHOWLOAD <OFF | ON>
SETPREF SPEEDOMETER <ON | OFF>
LOCKGUI                   Lock out the menu from the user
UNLOCKGUI                 Enable menus
SCREENTOFRONT
SCREENTOBACK
```

		Graphics Mode			
		320x200	320x400	640x200	640x400
Number of Bit-Planes	1	2	2	2	2
	2	4	4	4	4
	3	8	8	8	8
	4	16	16	16	16
	5	32	32	n/a	n/a
	6	64 / 409	64 / 409	n/a	n/a

FIGURE D-2 NUMBER OF COLOURS IN EACH DISPLAY MODE

Extra-Halfbrite Display Mode

Extra-Halfbrite uses a trick to increase the number of colours available on the screen. The Amiga supports only 32 colour registers directly, but Extra-Halfbrite uses a sixth bit plane to indicate an additional 32 registers that don't really exist. The first 32 registers are standard colour registers; the second 32 are Halfbrite equivalents. Pixels that use Halfbrite colours point to one of the standard colour registers and indicate that the colour should be displayed at half its normal intensity. This means that the second 32 pixels are not independent of the first 32; you can change the colour values only in the first 32 registers, and the change is automatically reflected in the Halfbrite equivalent. Figure D-3 shows how Extra-Halfbrite uses the bit planes and colour registers.

❖ Not all Amiga 1000 computers support Extra-Halfbrite. The easiest way to find out whether or not your computer supports this display mode is to try it. Open an Extra-Halfbrite screen and look at the Palette (make sure the pointer is not in the Menu Bar or Toolbox). If the last 32 colours are the same as the first 32, your computer doesn't support Extra-Halfbrite.

dot in bit plane 3 has a value of 1, and because it is in bit plane 3, the 1 is multiplied by 2³, which equals 8 (2 x 2 x 2). The numbers from the five bits are then added together to obtain the number of the colour register the pixel points to.

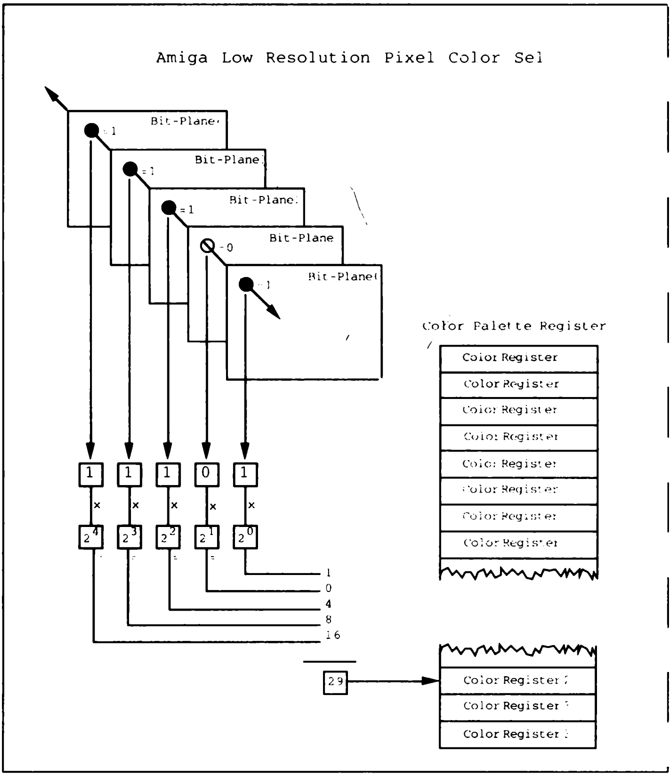
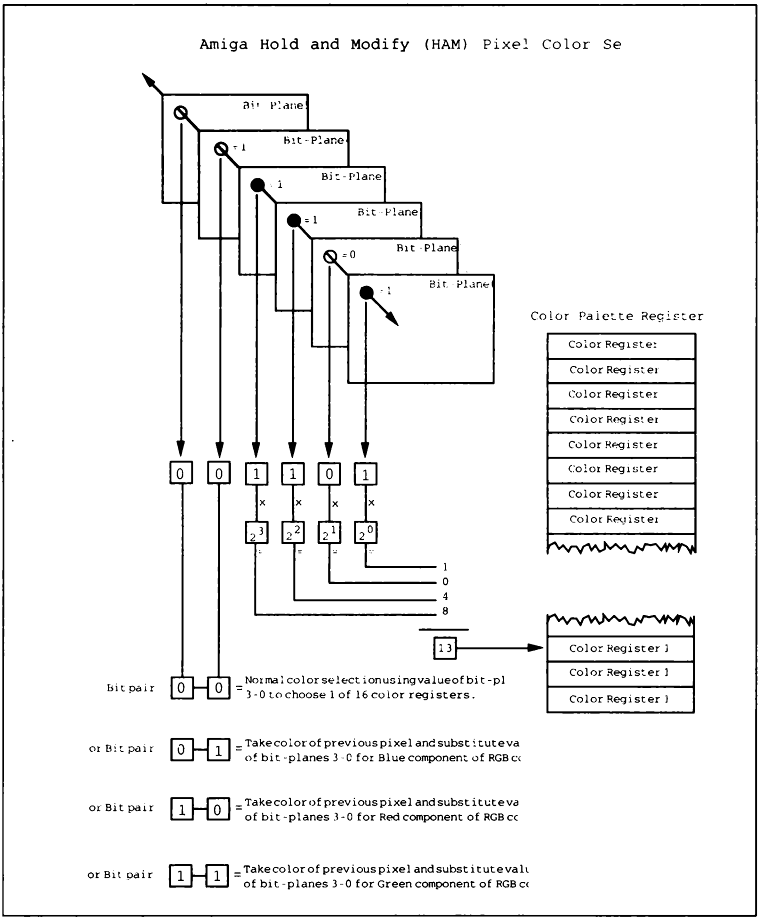

Amiga Low Resolution Pixel Color Sel
Bit-Plane
Bit-Plane
Bit-Plane
Bit-Plane
Bit-Plane
= 1
= 1
= 1
= 0
= 1
Color Palette Register
Color Register
Color Register
Color Register
Color Register
Color Register
Color Register
Color Register
Color Register
1
1
1
0
1
x
x
x
x
x
2⁴
2³
2²
2¹
2⁰
1
0
4
8
16
29
Color Register
Color Register
Color Register

FIGURE D-1 LOW RESOLUTION PIXEL COLOUR SELECTION

Low and High Resolutions work exactly alike, except that High resolution does not support as many bit planes, and therefore provides fewer colours. Figure D-2 lists the graphics modes and the number of bit planes and colours each supports. Notice that Hold And Modify mode is a departure from the notion that each additional bit plane doubles the number of colours available. Hold and Modify is a special case that we'll explain in a moment.

G15, B11, if bit planes 0 through 3 pointed to register 13 and bit planes 4 and 5 indicated that the register value should be used to modify the red component of the preceding colour. (Figure D-4 shows how the six bit planes are used to select a colour in Hold and Modify mode.)



Amiga Hold and Modify (HAM) Pixel Color Se
Bit Plane
Bit Plane
= 1
Bit Plane
= 1
Bit Plane
= 1
Bit Plane
= 0
Bit Plane
= 1
Color Palette Register
Color Register
Color Register
Color Register
Color Register
Color Register
Color Register
Color Register
Color Register
0
0
1
1
0
1
x
x
x
x
2^3
2^2
2^1
2^0
=
=
=
=
1
0
4
8
13
Color Register 1
Color Register 1
Color Register 1
Bit pair
0
0
= Normal color selection using value of bit-pl 3-0 to choose 1 of 16 color registers.
or Bit pair
0
1
= Take color of previous pixel and substitute va of bit-planes 3-0 for Blue component of RGB c
or Bit pair
1
0
= Take color of previous pixel and substitute va of bit-planes 3-0 for Red component of RGB c
or Bit pair
1
1
= Take color of previous pixel and substitute val of bit-planes 3-0 for Green component of RGB c

FIGURE D-4 HOLD AND MODIFY PIXEL COLOUR SELECTION

Because HAM colours are based on colour values of the preceding pixel, and only one colour value can be changed at one time, it may take three pixels to reach the colour you really wanted. In Figure D-5 it takes three pixels to change black (R0, G0, B0) to white (R15, G15, B15). Note that this example assumes there are no intermediate colours in the normal colour registers. This gradual change from one colour to the next is sometimes referred to as "ramping" the colour, and appears on the screen to the left of HAM pixels. If you need fine details in your picture, you will want to use a colour from the colour registers, because those colours do not require ramping.

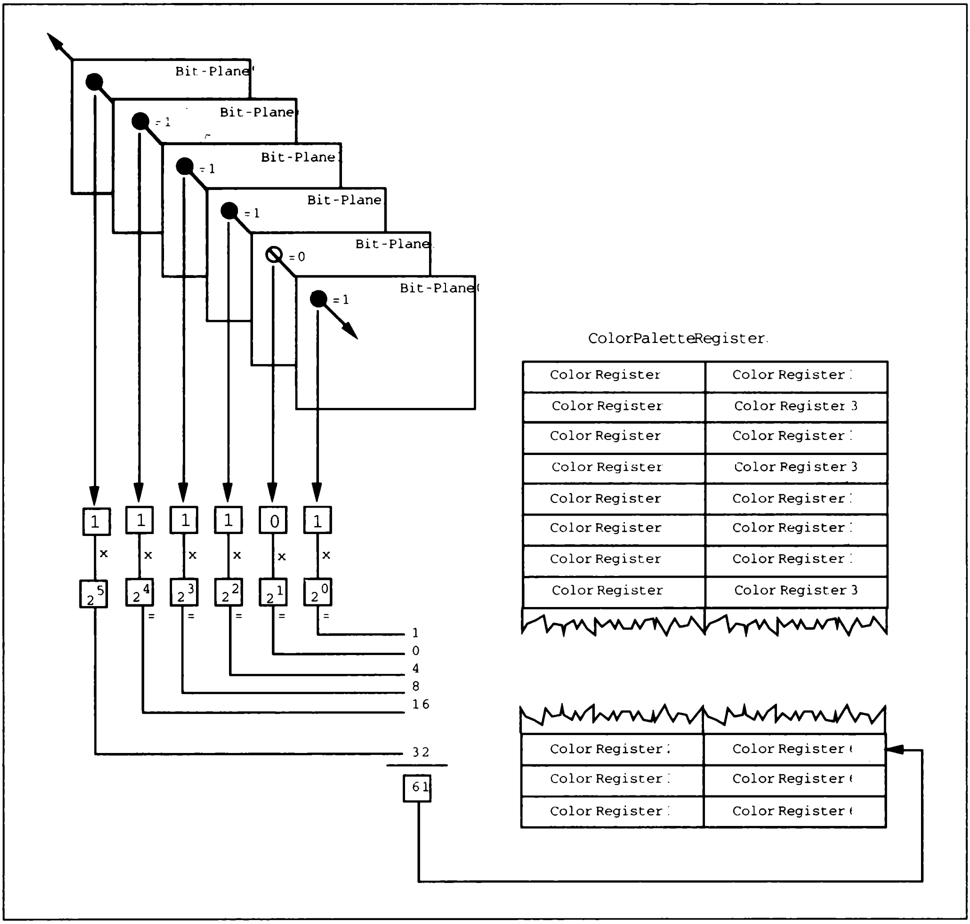

Bit-Plane
= 1
Bit-Plane
= 1
Bit-Plane
= 1
Bit-Plane
= 0
Bit-Plane
= 1
Bit-Plane
ColorPaletteRegister
Color Register
Color Register 3
1
1
1
1
0
1
x
2^5
2^4
2^3
2^2
2^1
2^0
=
1
0
4
8
16
32
61

FIGURE D-3 AMIGA EXTRA-HALFBRITE PIXEL COLOUR SELECTION

Hold and Modify Display Mode

Hold and Modify display mode uses only 16 colour registers, but manages to display all 4,096 colours on the screen at the same time. To accomplish this, HAM display mode uses the first four bit planes to address the 16 colour registers, and uses the fifth and sixth bit plane to determine whether the register colour or a HAM colour should be used.

A HAM colour is formed by taking the RGB value of the preceding pixel on the screen, and substituting a new value for one of the RGB components. The new value is the number derived from the first four bit planes. Here's a quick example:

Assume the colour values of one pixel (a register colour) are R3, G15, B11. The following pixel (a HAM colour) would have the colour values R13,

Appendix E: The 24-Bit Backing Store

This appendix describes the operation of DeluxePaint's 24-bit Backing Store function.

Overview

When the 24-bit Backing Store choice is selected (from the screen format requester), DeluxePaint will keep track of the RGB data associated with each colour in your picture, animation, custom brush or animbrush, independent of the screen mode you've selected. This means you can select any screen mode and any screen depth/number of colours that best fits your needs and your available memory. The program will approximate the RGB information on screen using the colours available to the screen mode selected — the more colours available to the screen mode, the more accurate the RGB approximation will be.

To determine the number of colours available for a particular screen mode, bring up the screen format requester, click on the desired screen mode and (screen) palette size, then look at the "Max Colours" attribute in the "Display Information" area of the screen format requester.

The Amiga Hold-and-Modify (HAM) screen modes are RGB based modes that offer the widest range of available colours on the Amiga display hardware to date. In HAM screen modes, the program will convert from 24-bit RGB to 6 or 8-bit HAM with a slight loss of the RGB accuracy.

In non-HAM screen modes, the program will convert each RGB colour to the closest primary or secondary colour in the screen palette using an ordered dither, or chequered-box pattern.

Palette Handling

When using the RGB Backing Store, it is important to distinguish between the screen palette and the user palette. The screen palette is the palette the program will use to approximate RGB data on screen. The user palette is the palette or "colour set" that you, the user, have complete control over. The user palette is basically a repository of colours that you will use while painting. All of the commands listed under the "Colour Set" or "Palette" submenus in the "Colour" menu directly apply to the user palette.

Since user palettes are easy to load and save, DeluxePaint only keeps track of one user palette. This one user palette is in effect for the main page, all animation frames, and the spare page. When you wish to work/paint with a different set of colours, simply load the new set of colours into your user palette and begin work. Modifying the user palette will not change the underlying RGB image in any way.

It is important to remember that the colours displayed in the toolbox area are only a screen approximation of the colours in the user palette. To get a more accurate representation of the user palette, bring up one of the colour

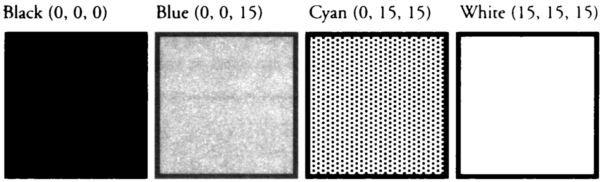


FIGURE D-5 HAM COLOUR RAMPING

In DeluxePaint V, if you hold a brush over an area made up of HAM pixels, you may see an effect called "fringing." The fringing appears as streaks running to the right from the edge of the brush. This effect is only temporary. When you paint the brush onto the picture, DeluxePaint corrects the fringing, but you may see the "ramping" effect where DeluxePaint recreates the HAM colour to the right of your brush.

tion frame has its own screen palette, then select **Recompute** from the Colour menu.

ColourFonts

This is a little tricky. ColourFonts are non-HAM, non-RGB fonts using up to 32 colours. When you use a ColourFont, with or without the RGB Backing Store, the program will ask you if you want to 'use this font's palette?' If you select "yes", the program will load the font's colours into the first 32 entries of the user palette. When you're not using the RGB Backing Store, loading the font's colours into the user palette will change the screen palette; when you are using the RGB Backing Store loading the font's colours will not change the screen palette. When you type using the selected ColourFont and an RGB Backing Store, the program will use the first 32 colours in the user's palette to render the colour font. If you load a different palette or you say "no" to the 'use this font's palette?' requester, the program will ignore the font palette and use the palette you have defined instead.

For example:

1. Select the 320x200 32-colour screen mode with a 24-bit Backing Store.
2. Set your font directory to the Karafonts directory.
3. Bring up the font requester and select "Chiselscript" 58.
4. Say "Yes" to use the Chiselscript palette.
5. Place the text cursor down somewhere and type something.
6. Select **Recompute** from the Colour menu so you can see what the text colours really look like.
7. Bring up the font requester and select "KaraGRANITE" 58.

❖ KaraGRANITE requires that you have Caps Lock on.

8. Say "No" so DeluxePaint will not load the KaraGRANITE palette into your colourset.
9. Place the text cursor down somewhere and type something; now you are typing with the KaraGRANITE font using the Chiselscript colours. If you select **Recompute** from the Colour menu you shouldn't see too much of a difference.
10. Bring up the font requester and select "KaraGRANITE" 58 again.
11. This time say "Yes" to use the KaraGRANITE palette.
12. Type something else and select **Recompute** from the Colour menu; you should see a significant difference.

Memory Management:

The 24-RGB Backing Store consumes a lot of memory. For this reason we do not recommend using the RGB Backing Store on a machine with less than 4 MB of available fast memory.

For each colour on the page, the program will use approximately 8 bytes of memory. If your page size 320x200, the program will allocate 320 * 200 * 4 panels: the mixer, the arrange palette panel, or the range definition panel. The colours displayed on these colour panels are probably the best approximation possible, on standard Amiga hardware, to the colours you've defined in your colourset.

The Recompute Option

As you paint with colours in the user palette, the colours in the screen palette may become inappropriate to accurately represent the range of colours in your image. For example, if you select a 320x200 screen mode with 32 colour registers, the program will set up a default screen palette with a variety of reds, blues, yellows, and greys. If the image you're painting contains mostly yellows and oranges, the default palette may not contain enough of the colours you're using and too many of the colours that you're not using.

When you select "Recompute" from the "Colour" menu, the program will analyse your image, compute the best screen palette for your image and the current screen mode, then refresh the entire display re-approximating your RGB data using the new screen palette. Once again, it is important to remember that modifying/recomputing the screen palette does not alter the underlying RGB image in any way.

Multiple Screen Palettes

Since recomputing screen palettes can take a considerable amount of time, DeluxePaint will keep track of multiple screen palettes. When you create a spare page, the program will keep track of the screen colours used for the spare independent of the screen colours used for the main page or animation frames. If you select the "Recompute" option from the "Colour" menu while viewing the spare page, only the screen palette for the spare will be recomputed.

When creating an RGB animation, the **Set Frame Palette** option under the **Anim>Frame** submenu allows you to create or attach different screen palettes to selected animation frames. By default, DeluxePaint creates one screen palette for an entire animation. Whenever you select the "Make Palette" option in the Set Frame Palette requester, DeluxePaint will create a new screen palette filled with the current set of screen colours and attach it to the current animation frame. If you then select **Recompute** from the Colour menu while viewing the current animation frame , the program will compute the best screen palette for the current frame then refresh the screen using the new screen palette.

Loading Pictures

When you load any picture into DeluxePaint while using the RGB Backing Store, the program will convert the image into RGB data and, if you're not loading the picture into an animation, the program will automatically compute the best screen palette for your image.

When loading a picture into your current RGB animation, DeluxePaint will convert the picture to RGB and approximate the RGB data using the screen palette associated with the current frame. If you want to better approximate the RGB data on a particular animation frame, make sure that the anima-

erformance Troubleshooting

If you're having performance problems when using the RGB Backing Store, please watch for the following:

- ☐ Are you running very low on memory? Perhaps there was not enough memory to allocate the closest DeluxePaint colour tables, so dithering to the screen might be very slow.
- ☐ Are you running low chip memory? If so, DeluxePaint may not have been able to allocate a screen representation for the undo area and this means that every time you scroll your page or toggle the toolbox or title bar or bring up a requester, DeluxePaint will have to recompute the screen representation of your image, dithering if necessary.
- ☐ Is your memory very fragmented? If so, DeluxePaint may have split your image up into many strips. Adding more memory or reducing the fragmentation (after a reboot) may help.

bytes = 250K for the colour information on the main page alone. The program will allocate an additional 320 * 200 * 4 bytes = 250K for its undo area. It is important to remember that your page size may be different than your screen size; if your page size is larger than the screen, DeluxePaint will be allocating RGB data for the larger area.

DeluxePaint will always try to allocate RGB data in fast or extended memory instead of chip memory whenever possible. This allows DeluxePaint to conserve precious chip memory for the screen and other Amiga-specific needs and to take full advantage of the performance benefits when using the processor to manipulate RGB colour information. DeluxePaint will also try to allocate memory in large contiguous blocks to reduce the amount of memory fragmentation whenever possible. If you are running low on contiguous memory, DeluxePaint will try to break the RGB data up into strips.

If you're running on a system with lots of available chip memory, DeluxePaint will try to allocate a "screen representation" for its undo area. This screen representation will increase overall performance for the RGB Backing Store by allowing DeluxePaint to simply copy the data from the "screen representation" to the main page whenever it needs to refresh the screen or perform an UNDO. If the screen representation could not be allocated, DeluxePaint will recompute the screen data from the RGB data whenever it is needed.

When you create a spare page, DeluxePaint will allocate and keep track of only the RGB data for the spare page. If necessary, DeluxePaint will reallocate the undo area. Since the program only keeps one copy of its undo area, the screen representation of the undo area will have to be recomputed each time you swap between the main and spare pages.

When you create an animation, DeluxePaint keeps track of both the RGB data and the screen data for each animation frame. This allows DeluxePaint to play the screen-representation of your animation without having to do any colour computations. When you create a custom brush or animbrush, DeluxePaint only keeps track of the RGB data. The program does not keep track of the screen data for the brush or animbrush because the actual screen data depends on where the brush or animbrush is displayed/painted.

Printing

DeluxePaint makes extensive use of Commodore's printer device. Unfortunately, this means that DeluxePaint currently has no way to output 24-bit data directly to the printer. Instead, DeluxePaint will print the screen representation of your picture or anim. For best results, try printing your RGB image when using a HAM screen mode.

Script Writing

You cannot write actual ARexx scripts from within DeluxePaint. A primitive command console called DPrx.rexx is included, and from DPRX you can execute a script or a 1 line ARexx command like you would with the Amiga DOS Shell.

To write scripts, use your favourite text editor to enter the actual script text that you are programming. All scripts must be saved with the ".dprx" filename extension in the assigned Macrodir: drawer of DeluxePaint. Scripts can be assigned to the User menu using the Load... option from the Macro menu in DeluxePaint. See the *Tooltypes* section of the ***Reference*** section for more information on setting up ARexx scripts to automatically load into DeluxePaint.

DeluxePaint's port name is DPaint.#, where the # is the order of DeluxePaint's running. For example, if you have two DeluxePaints running concurrently, the first one launched will be called DPaint.1, and the second one Dpaint.2, and so forth. Port names are how you address information from one application to the other. Think of it as an application's mailbox.

The following is a simple ARexx script (as viewed in a text editor) which sets the number of frames of the current page to 30:

```
/* Sample DPaint ARexx Macro Script */

Address "DPAINT.1"
LOCKGUI
SETFRAMES NUMBER 30
UNLOCKGUI

/* End Script */
```

How to Use this Section

This ARexx appendix is set up like the ***Reference*** section of the manual. Toolbox commands are listed first, followed by menu item commands, perspective commands, and user feedback commands. For an alphabetical listing of the commands available please check under the ARexx heading in the index. For additional information on how a certain tool or feature works in the software itself, please consult the ***Reference*** section or the tutorials.

ARexx conventions

This section introduces general guidelines and hints on how ARexx works within DeluxePaint.

Here are some of the common parameters used in this section. We have attempted to keep them in line with Amiga DOS and ARexx standards.

☐ /s = switch keyword
☐ /a = argument always required for command to work.
☐ /k = keyword required for the command parameter to work.
☐ /n = number
☐ /t = toggle keyword

Appendix F: ARexx Reference

What is ARexx?

ARexx is a programming language designed to allow you to flexibly customise your working environment. ARexx acts as a central hub through which applications may send data and commands to each other. This allows software created by different companies to interact, and in turn, allows the user to create custom applications by integrating off-the-shelf software products. For example, with ARexx it is possible to bring in a file to DeluxePaint, perform an automated operation, and return the modified fil to its original application with the execution of an ARexx script.

ARexx is useful for writing small batch-style programs (called macros or scripts) that allow the automation of repetitive tasks. DeluxePaint allows beginning users to create macros by recording the menu choices, mouse clicks, and toolbox choices they make, and allows them to save those recorded movements and menu choices as macros (simple ARexx scripts that can be edited by knowledgeable ARexx programmers). You can automate a process like drawing your signature so that you can save it out as a macro and use it automatically with all of your images.

Who is ARexx for?

We've tried to make DeluxePaint's implementation of ARexx useful for everyone—DeluxePaint permits the recording of mouse/screen interactions menu choices, and toolbox choices, so simple DeluxePaint actions can be saved as macros. Nonetheless, keep in mind that custom ARexx script creation is for the advanced user who has become well-acquainted with the Amiga and with the ARexx programming language in general. A basic understanding of both the Workbench and AmigaDOS will aid in understanding how ARexx works and how it can be put to use.

ARexx is used to customise the manner in which DeluxePaint interacts wit other applications and the Amiga's working environment. You should be thoroughly familiar with that environment before attempting to tailor it to suit your needs. Using ARexx programs and scripts do not require previous Amiga experience, but a working knowledge of the Amiga's operation will permit you to change the scripts to suit your needs. There are many books and references for ARexx scripting on the Amiga. Please consult with your local user group, dealer, on-line service, or computer bookstore for more information.

Notice about DeluxePaint ARexx Script Programming

ARexx is an advanced programming language that can be used to write macro scripts. Scripting is only recommended for expert computer users. The ARexx command set and examples listed in this section are specific only to DeluxePaint operations, and are intended for use by those experienced in ARexx scripting.

NOTE: ***Electronic Arts does not offer technical customer support for ARexx scripting issues.*** For more information please consult the ARexx portion of your system documentation (Amiga DOS 2.04 or greater).

reen to Front r Back

Format: **SCREENTOFRONT**
Function: Brings the currently addressed DeluxePaint Screen to the front.

Format: **SCREENTOBACK**
Function: Moves the currently addressed DeluxePaint Screen to the back.

ersion Checking

Format: **VERSION**
Function: Returns the internal version number of the currently addressed DeluxePaint V.

ToolBox Items

NOTE: It's generally a good idea to turn off the menu bar, toolbar, and any other panel while drawing commands are issued, as the panels or bars may interfere with the drawing and use of the UNDO command.

uilt-in Brushes

Format: **SETPEN** PENNUM/N
Function: Sets the current brush to one of the toolbox's built in brushes. Accepts values from 0 (single pixel brush) to 9 (5 dot pixel brush).
Example: The command "SETPEN 3" will set the current pen to the largest circular brush in the toolbox.

Format: **SETPENSIZE** SIZE/N
Function: Sets the size of the current built-in brush. Different screen modes will have different maximums. In lower resolutions the maximum is approximately 100 pixels across, in higher resolutions it is approximately 200 pixels across.

otted Freehand Drawing

Format: **DOTTED**
Function: Sets the current draw tool to dotted freehand

Freehand and Filled Freehand raw Tool

Format: **FREEHAND** FILL/S,OUTLINE/S
Function: Sets the current draw tool to Freehand draw. The optional switches set the tool to its special modes. Uses the current brush to draw the line.
FILL Switches Freehand draw to Filled Freehand Draw which uses the current Fill Settings as its default fill.
OUTLINE Switches Freehand draw to Filled Freehand Draw and uses the current brush to outline the drawn shape. This switch is the same as the user using the 'i' key in the DeluxePaint interface to outline their filled shape with their current brush. See the ***Reference*** section for more information.

ine Draw Tool

Format: **LINE** X1/N,Y1/N,X2/N,Y2/N
Function: Sets the current draw tool to Line draw. Starting X,Y and ending X,Y screen positions can be entered optionally to set the start and end location of the line being drawn. DeluxePaint's internal coordinate system, which starts 0,0 at the upper left corner of the screen, is used.

☐ X,Y coordinates in DeluxePaint are always using a system starting 0,0 at the upper left corner of the screen. If you want the program's visual coordinates to match your script coordinates, make sure you have Origin UL checked on in the Prefs menu.

☐ Because DPRX is a very basic command console, it converts all text to uppercase. Therefore, any saved filename or string issued from the DPRX shell will be in uppercase.

☐ ARexx requires a double set of quotes when issuing strings that contain spaces. For example: SAVEBRUSH FILE ‘“Ram:My Brush”’.

☐ Variables and negative numbers must be enclosed in parenthesis.

☐ Strings and load/save paths must be enclosed in quotation marks.

☐ Whether or not the menu bar is on affects drawing commands that are dependent on coordinate areas, and also affects how you use the UNDO command.

☐ Animation playback commands require that the GUI is unlocked before the commands are issued.

☐ Using more than one switch in your command can have varying results. As a rule of thumb, you can use these commands as you would use them from within the program. If you try to use a combination that the program does not perform, the command will usually default to the last parameter given. Consult the ***Reference*** section if you are unsure how a feature works.

☐ File I/O commands. All Load/Save commands can take file patterns or directories in place of the FILE parameter. In this case, the appropriate requester will come up with the directory and pattern pre-loaded (directories must end in “/”).

Commands for Scripts or Command Line use

No Operation Performed

Format: NOP
Function: Performs no operation.

Command Help

Format: HELP Command/A
Function: Returns the command structure for the keyword “COMMAND”
Example: Typing “Help Brush” at the command line would result in: BRUSH LEFT/N, TOP/N, WIDTH/N, HEIGHT/N, CUT/S, RESTORE/S

	position and radius can be specified optionally. Uses the current brush to draw the unfilled Circle.
OUTLINE	Switches the Circle tool to a Filled Circle and uses the current brush to outline the Circle.
RADIUS	This numeric parameter specifies one half the diameter of your circle in pixels.

Ellipse Tool

Format:	ELLIPSE X1/N,Y1/N,X2/N,Y2/N,FILL/S,OUTLINE/S
Function:	Sets the current tool to the unfilled Ellipse tool. Starting, and End X,Y screen positions can be specified optionally to draw the Ellipse. Uses the current brush to draw the unfilled Ellipse.
FILL	Switches the Ellipse tool to a Filled Ellipse tool which uses the current Fill Settings as its default fill.
OUTLINE	Switches the Ellipse tool to a Filled Ellipse and uses the current brush to outline the Ellipse. This switch is the same as the user using the 'i' key in the DeluxePaint interface to outline filled shapes with the current brush.

Polygon Shape Tool

Format:	POLY X1/N,Y1/N,X2/N,Y2/N,X3/N,Y3/N, FILL/S,OUTLINE/S
Function:	Sets the current tool to the unfilled Polygon tool. Starting, and End X,Y screen positions can be specified optionally to draw the Polygon. Uses the current brush to draw the unfilled polygon.
FILL	Switches the Polygon tool to a Filled Polygon tool which uses the current Fill Settings as its default fill.
OUTLINE	Switches the Polygon tool to a Filled Polygon and uses the current brush to outline the Polygon.

Brush Pickup Tool

Format:	BRUSH LEFT/N,TOP/N,WIDTH/N,HEIGHT/N, CUT/S,RESTORE/S
Function:	Sets the current tool to the Brush tool. It defaults to the rectangular brush pickup tool, but multiple invocations of this command will set it to the polygonal brush tool pickup and the magic brush tool pickup respectively. Optionally you can restore the last custom brush, set starting x,y screen position , the width and height, and whether you want to cut it off the page.
CUT	Switches Brush pickup mode from copying the brush data from the screen to picking up or cutting out the brush data off the screen. This switch is the equivalent of a user picking up a brush with the right mouse button in the DeluxePaint interface.
RESTORE	Issuing this switch retrieves the most recent custom brush or AnimBrush and is the equivalent of a user right-clicking on the brush selector tool in the DeluxePaint interface.

Text Tool

Format:	TEXT X/N,Y/N,STRING/F
Function:	Sets the current tool to the text tool. Optionally, the command will accept a string and the starting x,y screen position for the text cursor. The STRING keyword is a final argument and should be followed by a text string. The STRING keyword requires x,y screen coordinates to place the text.

Example: The command “Line 100 100 145 130” results in a line being drawn with the current brush and pen colour starting at screen position 100,100 and ending at screen position 145,130.

Curve Draw Tool

Format: CURVE X1/N,Y1/N,X2/N,Y2/N,X3/N,Y3/N

Function: Sets the current draw tool to Curve Draw. Starting, Offset, and End X,Y screen positions can be specified optionally to draw the curve. DeluxePaint internal coordinate system, which starts 0,0 at the upper left corner of the screen, is used.

Example: The command “Curve 100 100 150 50 200 100” results in a curve that starts at screen position 100,100 has its apex at screen position 150,50 and ends at screen position 200,100.

Fill Tool

Format: FILL X/N,Y/N,TOBGCOLOR/S,ANIMFILL/S

Function: Sets the current draw tool to the Fill tool. A starting X,Y screen position can be specified optionally to start the flood fill at a specific screen position.

TOBGCOLOR This switch is the same as the user using the ‘i’ key in the DeluxePaint inte face to fill a shape outward from the point specified to the background colour.

ANIMFILL Switches on the AnimFill mode, where the fill tool will fill every frame in the current animation outward from the screen position specified or where mouse click has occurred. Doesn’t work with fill types that use a directional line to define the gradient.

Example: The command “FILL 60 75 TOBGCOLOR” results in the fill tool doing ; flood fill with the current settings and filling from screen position 60,75 outward until the program detects the current background colour.

Airbrush Tool

Format: AIRBRUSH

Function: Sets the current tool to the Airbrush tool. Invoking the command a second time cycles the airbrush from Old Style splatter mode to the new Standard mode.

Rectangle Tool

Format: RECT LEFT/N, TOP/N, WIDTH/N, HEIGHT/N, FILL/S, OUTLINE/S

Function: Sets the current tool to the Unfilled Rectangle tool. A starting left and top screen position offset, and width and height in pixels can be specified optionally. Uses the current brush to draw the unfilled Rectangle.

FILL Switches the Rectangle tool to a Filled Rectangle tool which uses the curren Fill Settings as its default fill.

OUTLINE Switches the Rectangle tool to a Filled Rectangle and uses the current brush to outline the Rectangle. This switch is the same as the user using the ‘i’ ke in the DeluxePaint interface to outline filled shapes with the current brush.

Example: The command “RECT 10 10 100 150 FILL” results in a Filled Rectangle that has it top left corner at screen position 10,10, a width of 100 and a height of 150.

Circle Tool

Format: CIRCLE X/N,Y/N,RAD/N,FILL/S,OUTLINE/S

Function: Sets the current tool to the Unfilled Rectangle tool. A starting X,Y screen

ToolBox Related Functions

Fill Type Setting

Format: SETFILL SOLID/S,PERSPECTIVE/S,PATTERN/S,RUB/S, BRUSH/S,WRAP/S,HBRITE/S,VERT/S,HORIZ/S, HLINE/S,LINE/S,SHAPE/S,CIR/S,CONT/S,HI/S, RANGE/N,DITHER/N,RANDOM/S,PATDITHER/S, SMOOTH/S, FROMBRUSH/S

Function: Sets the fill type requester settings for all filled drawing tools. The settings cannot be combined differently than allowed by the program.

HBRITE Only available in Halfbrite screen modes.

RUB Only available when there is a spare page.

PATTERN Requires a custom brush and the FROMBRUSH switch be invoked the first time pattern fill is used.

BRUSH Uses the current custom brush for its fill.

WRAP Uses the current custom brush for its fill.

RANGE Accepts legal values from 1 to 8.

NOTE: DeluxePaint will recognise the first numeric value without a keyword as the range number.

RANDOM Switches dither type to random using Dither value.

DITHER Accepts values from 0 to 100. Numbers refer to a percentage value.

PATDITHER Does not accept DITHER values, already predefined.

SMOOTH Does not accept DITHER values, already predefined.

For more information on the fill requester please consult the *Reference* section of the this manual.

Example: "SETFILL FROMBRUSH PATTERN" sets the fill requester to use pattern fill using the current custom brush.
"SETFILL SHAPE RANGE 3 SMOOTH" sets the fill requester to use the HIghlight fill, Range number 3, and the Smooth dither option.
"SETFILL CIR 2 75 RANDOM" sets the fill requester to use the CIRcular fill using range number 2, and Random dither set to 75%.

Spacing Setting

Format: SETSPACE NTOTAL/S,NTHDOT/S,AIRBRUSH/S, CONTINOUS/S,VALUE/N

Function: Sets the spacing requester settings for the line tool and unfilled shape tools. The command by itself will invoke the requester.

NTOTAL This switch accepts a Value between 0 and 32767 and controls the number of stamps a brush will make along a given line—useful for AnimPainting. The Default Value is 20.

NTHDOT This switch accepts a Value between 0 and 32767 and defines the number of pixels between your brush stamps. Default Value is 8.

AIBRUSH This switch accepts a Value between 0 and 32767 and uses the Old Style airbrush . The value determines how many airbrush sprays are applied to the line being drawn. Default Value is 16.

CONTINUOUS This switch ignores a Value and is the default setting of the Spacing requester.

Example: "SPACING NTOTAL VALUE 15" sets the spacing requester to an NTOTAL of 15.

Example: **TEXT 100 100 STRING Hello This is a Tes**
TEXT 200 100 "Hello This is a Test"

Grid Tool

Format: **GRID** ON/S,OFF/S,TOGGLE/S,ALIGN/S

Function: Sets the Grid tool mode. The command is implemented as a toggle, with optional keyword switches to turn the grid on, off, or toggle the current state. The ALIGN keyword will turn on the grid and use the handle position of the current brush as a centre point of the grid.

Example: Issuing the command "GRID ON ALIGN" would turn on the grid toolbox mode and align the grid cross points to the current brush handle.

Symmetry Tool

Format: **SYMMETRY** ON/S,OFF/S,TOGGLE/S

Function: Sets the Symmetry tool mode. This command is implemented as a toggle, with optional keyword switches to turn symmetry on, off, or toggle the current state. Symmetry uses the current drawing tool.

Magnify

Format: **MAGNIFY** X/N,Y/N,ON/S,OFF/S,TOGGLE/S,SPEC/S

Function: Sets the Magnify tool on. Optionally, this command can be given x,y screen points, and keyword switches to turn Magnify on, off, toggle the current state, or go into interactive place mode. Magnification doesn't affect the current tool.

SPEC This switch puts the user into magnify place mode. This switch is the equivalent of clicking the Magnify tool in the toolbox.

Zoom

Format: **ZOOM** IN/S,OUT/S

Function: Sets the current zoom or magnification level of the Magnify tool. There is no visual representation when the magnify tool is on, but it does perform the operation.

Undo

Format: **UNDO**

Function: Undoes the last previous painting action as long as no other mouse click or screen refresh has taken place.

Clear Screen or Frames

Format: **CLEAR** ALL/S,CURRENT/S,RANGE/S,START/N,END/N, ASK/S

Function: Clears the current screen. If there are animation frames, the command has options to clear all frames, the current frame, a range of frames, or just bring up the requester by asking for it.

Example: "CLEAR" clears current screen.
"CLEAR ALL" clears all current animation frames to the background colour.
"CLEAR RANGE 1 5" clears frames 1 through 5 to the background colour.
"CLEAR ASK" displays the current, range, all requester if there are animation frames.

"SETSYMMETRY POINT CYCLIC ORDER 12 CENTERX 160 CENTERY 100" will set the Symmetry tool to Point Cyclic mode, 12 symmetry points, and a centre screen point of 160, 100.

Font Settings

Format: **SETFONT** NAME,SIZE/N,PLAIN/S,BOLD/S,ITALIC/S, UNDERLINE/S,USEPALETTE/S

Function: Sets the current font, font size, font style, or ColorFont palette for the program. The command by itself will invoke the requester.

NAME This keyword allows the user to specify a font type from the current font directory.

SIZE This keyword requires a number to indicate the font size you wish to load.

USEPALETTE This switch should be used when indicating that you wish to load a ColorFont such as KARA ColorFont and you would like to automatically load that font's palette.

Example: "SETFONT Times 24 Bold Italic" would set the current font to a typeface of Times (if available on your system) a size of 24 point, and bold and italic styles on.

Misc. Colour Items

Set Foreground Colour

Format: **SETFGCOLOR** COLNUM/N

Function: This command sets the current foreground colour to that of the colour number indicated. Legal values for the colour number are 0 to 255. This is the equivalent of a user picking a colour from the screen, colour set, or tool palette with the left mouse button.

Set Background Colour

Format: **SETBGCOLOR** COLNUM/N

Function: This command sets the background colour to that of the colour number indicated. Legal values for the colour number are 0 to 255. This is the equivalent of a user picking a colour from the screen, colour set, or tool palette with the right mouse button.

Find Closest Colour

Format: **CLOSESTCOLOR** RED/N/A,GREEN/N/A,BLUE/N/A, REGISTER/S

Function: This command will search the current colour set and return the index number of that colour that most closely matches the specified RGB values. RED, GREEN, and BLUE numeric values are required arguments for this command. Legal values are from 0 to 255.

REGISTER This switch will return the closest register (palette colour) colour index number that most closely matches your specified RGB values. Please see the ***Tutorial*** and ***Reference*** sections for further information on the difference between palette colours and colour set colours.

Example: "CLOSESTCOLOR 255 0 0 REGISTER" searches for a colour with the closest matching RGB value to red that is a register/palette colour.

Set RGB Values

Format: **SETRGB** INDEX/N/A,RED/N/A,GREEN/N/A, BLUE/N/A

Function: This command allows you to set the RGB values for a specific colour (INDEX). INDEX, RED, GREEN, and BLUE numeric values are required arguments for this command. Legal values are from 0 to 255.

Airbrush Settings

Format:	SETAIRBRUSH OLD/S,STANDARD/S,RADIUS/N, FLOW/N, SIZE/S
Function:	Sets the airbrush requester settings for the Old Style and Standard airbrush. The command by itself will invoke the requester.
OLD	This switch cannot be used in conjunction with STANDARD, and ignores values for FLOW.
STANDARD	This switch cannot be used in conjunction with OLD.
RADIUS	This keyword followed by a numeric value defines the spray radius of both types of airbrushes. The radius of the OLD airbrush is also affected by the current pensize.
FLOW	This keyword followed by a numeric value defines how fast the "paint" is sprayed on the screen.
SIZE	This switch puts the user into interactive sizing mode which sets the radius of the airbrush.

Grid Settings

Format:	SETGRID X/N,Y/N,ADJUST/S
Function:	Sets the grid settings requester. The command by itself will invoke the requester. Width in x and Height in y can also be specified.
ADJUST	This switch puts the user in interactive grid adjustment mode.
Example:	"SETGRID 20 20" sets the grid height and width to 20 screen pixels.

Symmetry Settings

Format:	SETSYMMETRY POINT/S, TILE/S,CYCLIC/S,MIRROR/S, ORDER/N/K, CENTERX/N/K,CENTERY/N/K,PLACE/S, WIDTH/N,HEIGHT/N
Function:	Sets the symmetry settings requester. The command by itself will invoke the requester.
POINT	This switch sets the symmetry tool to point symmetry mode. This switch cannot be used in conjunction with TILE, and ignores any WIDTH and HEIGHT numeric values given in the same line.
CYCLIC	Switch used only in Point Symmetry.
MIRROR	Switch used only in Point Symmetry.
ORDER	This keyword is required for changing the number of symmetry points. The keyword should be followed by a legal value from 2 to 360. Only used for POINT Symmetry.
TILE	This switch sets the symmetry tool to tile symmetry. TILE requires width and height values for the size of the tiling grid.
CENTERX	This keyword is required for placing the screen x position from which symmetry radiates from. The keyword should be followed by a legal screen width value. Only used for POINT Symmetry.
CENTERY	This keyword is required for placing the screen y position from which symmetry radiates from. The keyword should be followed by a legal screen height value. Only used for POINT Symmetry.
PLACE	This switch puts the user in interactive mode that sets the central x,y symmetry point. Only used for POINT Symmetry.
WIDTH	This keyword is used to set the screen width of the Tile grid. Only used for TILE Symmetry. You must also issue Height to use Width.
HEIGHT	This keyword is used to set the screen height of the Tile grid. Only used for TILE Symmetry. You must also issue Width to use Height.
Example:	"SETSYMMETRY TILE 50 50" will set the Symmetry tool to Tile mode and a tile grid of 50 by 50 pixels.

off the menu bar. This command is the equivalent of the user pressing the F10 key in the DeluxePaint interface.

F9 - Menu On/Off

Format: **TITLE** ON/S,OFF/S,TOGGLE/S

Function: This command turns on and off the menu bar from the DeluxePaint interface. This command is the equivalent of the user pressing the F9 key in the DeluxePaint interface.

Del - Cursor On/Off

Format: **CURSOR** ON/S,OFF/S,TOGGLE/S

Function: This command turns on and off the screen cursor from the DeluxePaint interface. This command is the equivalent of the user pressing the Del key in the DeluxePaint interface.

Canvas Interaction

NOTE: These commands cannot be used to actually make menu or toolbar selections either by themselves or in conjunction with any other commands. To select a specific toolbar item or menu item you must invoke it as a separate ARexx command.

Mouse Movement

Format: **MOVETO** X/N/A,Y/N/A

Function: This command moves the screen cursor to a specified screen x,y position. DeluxePaint's internal coordinate system, which starts 0,0 at the upper left corner of the screen, is used.

Menu Selection

Format: **MBUTTONS** SELECTDOWN/S,SELECTUP/S,
MENUDOWN/S,MENUUP/S

Function: This command controls the current state of the right and left mouse buttons. The command can be used to set the left (select) or right (menu) mouse buttons up or down, respectively. This command is the equivalent of a user depressing or releasing the mouse button in the DeluxePaint interface. SelectDown and SelectUp are the equivalent of the left mouse button. MenuDown and MenuUp are the equivalent of the right mouse button.

Left Mouse Button

Format: **LEFTMOUSE** UP/S,DOWN/S,CLICK/S

Function: This command controls the current state of the left mouse button. The command will allow setting the left mouse button up, down, or just clicked.

Right Mouse Button

Format: **RIGHTMOUSE** UP/S,DOWN/S,CLICK/S

Function: This command controls the current state of the left mouse button. The command will allow setting the left mouse button up, down, or just clicked.

Example: SETRGB Index 4 0 255 255

Get RGB Values

Format: **GETRGB** INDEX/N/A, RED/S,GREEN/S,BLUE/S

Function: This command returns the RGB values for a specific colour (INDEX). INDEX is a required argument for this command. Legal values are from 0 to 255. Using the optional switches returns specific values.

Example: "GETRGB Index 4" might return the following values:
RED 0 GREEN 255 BLUE 255

Get LightTable Layer

Format: **GETLAYER** NUMBER/N/A,STATUS/S,OFFSET/S,DIM/S

Function: This command returns the LightTable settings requester status for a specific layer number. A layer number must always be specified.

NUMBER A value of 1 to 4 must be specified for this command to work.

STATUS This switch returns a value of ON or OFF.

OFFSET This switch returns the relative frame offset currently set for the layer.

DIM This switch returns a value between -255 and 255 to indicate the level or brightness or darkness attributed to the given layer.

Examples: "GETLAYER 4" (Default return is "ON OFFSET 0 DIM 144")
"GETLAYER 1 DIM" (Default return is "48")

Get LightTable Status

Format: **GETLIGHT** STATUS/S,LOCKED/S

Function: This command returns the status of the LightTable feature (ON or OFF). It also returns the status of the "Anim Lock" toggle (LOCKON or LOCKOFF) in the LightTable Settings requester. Please see the ***Reference*** section for more information on Anim Lock or any other LightTable features.

Keyboard Items

Scrolling the Screen

Format: **SCROLL** X/N/A,Y/N/A,SCREEN/S

Function: This command scrolls the screen a specific x,y distance using the Cartesian coordinate system of the program where 0, 0 is in the centre of the screen.

SCREEN This switch scrolls the entire DeluxePaint window the specified x,y distance. This is equivalent to holding down the left Amiga key and mousing down.

HELP Key

Format: **HELP**

Function: This command is equivalent to the user pressing the Help key while in the DeluxePaint interface.

Reset Colour Palette

Format: **RESET**

Function: This command makes the toolbox and menu bar visible in case the palette in use made the toolbox and menu bar invisible. This action is not undoable.

F10 - Toolbar On/Off

Format: **PANEL** ON/S,OFF/S,TOGGLE/S

Function: This command turns on and off the toolbar panel from the DeluxePaint Interface. If the menu bar is showing this command will also turn on and you wish to save as a series of pictures. Use the End parameter to set the ending frame. The option automatically appends a three digit number to the end of your filename.

Print Image(s)

Format: **PRINT**

Function: This command brings up the Print requester.

Flip Image(s) Horizontal

Format: **FLIPPICX** ALL/S,CURRENT/S, RANGE/S,START/N, END/N

Function: This command flips the current screen on its x axis. If an animation is currently in memory, this command brings up the Flip X requester. Optionally, you can specify all, current, and range switches. START and END keywords require valid frame range values and the keyword RANGE be used.

ALL If an animation is currently in memory, this switch will flip all frames on their X axis.

CURRENT If an animation is currently in memory, this switch will only flip the current frame on its X axis.

RANGE If an animation is currently in memory, this switch in conjunction with the START and END keywords will only flip a specified range of frames.

START This numeric keyword requires the switch RANGE and also requires a valid frame number as a starting point for flipping a range of frames on the X axis.

END This numeric keyword requires the switch RANGE and also requires a valid frame number as an ending point for flipping a range of frames on the X axis.

Flip Image(s) Vertical

Format: **FLIPPICY** ALL/S,CURRENT/S,RANGE/S,START/N, END/N

Function: This command flips the current screen on its y axis. If an animation is currently in memory, this command brings up the Flip Y requester. Optionally, you can specify all, current, and range switches. START and END keywords require valid frame range values and the keyword RANGE be used.

Spare Page

Format: **SWAPPICTOSPARE**

Function: This command swaps the current page with the spare page. This command is the equivalent of the user selecting Spare>Swap from the Picture menu or pressing `j` in the DeluxePaint interface.

Format: **COPYPICTOSPARE**

Function: This command copies the current page to the spare page. This command is the equivalent of the user selecting Spare>Copy to Spare from the Picture menu or pressing Ctrl-`j` in the DeluxePaint interface.

Format: **MERGEINFRONT**

Function: This command merges the spare page in front of the current page using the current background colour as the transparent or key colour.

Format: **MERGEINBACK**

Function: This command merges the spare page behind the current page using the current background colour as the transparent or key colour.

Locks

NOTE: Issuing any animation play commands require that you issue an unlockGUI command first. LockGUI and UnlockGUI commands must be issued equally in a script such that for every LockGUI command issued an equal number of UnlockGUI commands must also be issued.

Format: **LOCKGUI**

Function: This command locks out the DeluxePaint interface from a user or other process and is highly recommended when performing complex operations and scripts.

Format: **UNLOCKGUI**

Function: This command unlocks the DeluxePaint interface and must be used for normal user interaction with the program if a LockGUI command has been issued previously be a script or user.

Picture Menu

Load Picture

Format: **LOADPIC** FILE,COUNT/N, CHGTOFMT/S, KEEPFMT/S, DITHER/S,NODITHER/S

Function: This command loads IFF ILBM files as pictures using the ASL (Amiga Standard Libraries) Load requester. Path and File name, screen format changing or maintaining, and dithering options can also be specified optionally.

FILE This keyword specifies that a path and filename are to follow. It is recommended that paths and filenames be enclosed in quotes.

COUNT This numeric parameter accepts the number of files you wish to load and assemble as an animation, beginning with the first file specified. See the ***Reference*** section for more information on this feature.

CHGTOFMT This switch tells the program that you wish to change the current screen format and palette depth to that of the image that is to be loaded.

KEEPFMT This switch tells the program that you wish to keep the current screen format and palette depth. The image to be loaded will be automatically converted to the new screen format and palette depth.

DITHER This switch tells the program that you wish to dither the image that is to be loaded if it is an option. Generally, the program will only offer the dither/no dither options when the current screen mode is register based and the image being loaded is a HAM or 24-bit image.

NODITHER This switch tells the program that you wish no dithering be done to the image that is to be loaded if it is an option. Please see above on how DeluxePaint determines the dither/no dither options.

Save Picture

Format: **SAVEPIC** FILE,FORCE/S,START/N,END/N

Function: This command saves the current frame as pictures using the ASL (Amiga Standard Libraries) Save requester. Path and File name and whether to overwrite an existing file can also be specified optionally.

FORCE This switch allows the automatic overwrite of an existing file that has the same name as the one you are currently saving. Normally the program issues a warning requester telling you that the file you are about to save already exists and allows you to cancel from it.

START This numeric parameter specifies the starting frame number of the range

COLORS	This keyword allows for the setting of the mode's palette and only allows the input of legal values for a given mode. For example, Halfbrite modes only allow for a palette of 32 colours, HAM only 16 colours, AA-HAM 64 colours, etc.
BACK24BIT	This switch turns on the 24-bit RGB data backing store. In backing store mode, users will be presented with a screen representation of the actual 24-bit data.
NOBACK	This switch turns off the 24-bit RGB data backing store.
RETAIN	This switch will retain the current data on the main page and convert it if necessary to the mode being changed to. You must have enough memory for the conversion for this option to work. Please be sure to save your image before attempting this switch.
NORETAIN	This switch throws away the current data on your main page when changing to another mode.

ModeID Reference:

11000 Series are the Lo-Res NTSC modes:
11000 - NTSC Lo-Res (320x200)
11004 - NTSC Lo-Res Laced (320x400)
11080 - NTSC Halfbrite
11084 - NTSC Halfbrite Laced
11800 - NTSC HAM
11804 - NTSC HAM Laced

19000 Series are the Hi-Res NTSC modes:
19000 - NTSC Hi-Res (640x200)
19004 - NTSC Hi-Res Laced (640x400)
19020 - NTSC ECS (1280x200)
19024 - NTSC ECS Laced (1280x400)
19080 - AA-Halfbrite
19084 - AA-Halfbrite Laced
190a0 - AA-Halfbrite (ECS, 1280 x 200)
190a4 - AA-Halfbrite (ECS, 1280 x 400)
19800 - AA-Ham
19804 - AA-Ham Laced
19820 - AA-HAM (ECS, 1280x200)
19824 - AA-HAM (ECS, 1280x400)

21000 Series are the Lo-Res PAL modes:
21000 - PAL Lo-Res (320x256)
21004 - PAL Lo-Res Laced (320x512)
21xxx - For other modes, use the same 3 digit suffix numbers as the NTSC modes listed above.

29000 Series are the Hi-Res PAL modes:
29000 - PAL Hi-Res (640x256)
29004 - PAL Hi-Res Laced (640x512)
29020 - PAL ECS (1280x256)
29024 - PAL ECS Laced (1280x512)
29xxx - For other modes, use the same 3 digit suffix numbers as the NTSC modes listed above

Example: "SETSCREENFORMAT 11000 320 200 640 400" will change to NTSC:LoRes with screen size 320x200 and page size 640x400. Colours are set to the maximum allowable by default.

Format:	DELETEPAGE
Function:	This command deletes the current page and frees the memory allocated for that page. Please note that this command does not delete the spare page, but deletes the current page (the one that is visible). The user will be prompted to confirm this choice or cancel it.

Set Pagesize

Format:	SETPAGESIZE SCREEN/S,PAGE/S,OVERSCAN/S, CUSTOM/S,WIDTH/N,HEIGHT/N
Function:	This command brings up the Set Page Size requester. Optionally this command allows for the setting of a screen, page, overscan, and custom page size.
SCREEN	This switch sets the page size to dimensions equal to that of the current screen.
PAGE	This switch sets the page size to dimensions that approximate the proportions of 8.5" X 11" paper.
OVERSCAN	This switch sets the page size to dimensions that equal the "MAX Overscan" values as they are defined by the current screen format.
CUSTOM	This switch in conjunction with the WIDTH and HEIGHT keywords sets the page size to custom dimensions as they are specified with the WIDTH and HEIGHT keywords.
WIDTH	This keyword requires the CUSTOM switch and a valid number to specify the width of the page in pixels. The theoretical upper limit of width is 32767. You must have enough memory to allocate for a custom page.
HEIGHT	This keyword requires the CUSTOM switch and a valid number to specify the height of the page in pixels. The theoretical upper limit of the height is 32767. You must have enough memory to allocate for a custom page.

Show Page

Format:	SHOWFULLPAGE
Function:	This command puts the program into the showpage mode. This command should be invoked only when the GUI is unlocked.

Screen Format

Format:	SETSCREENFORMAT MODEID, SCREENW/N, SCREENH/N, PAGEW/N,PAGEH/N, COLORS/N, BACK24BIT/S,NOBACK/S,RETAIN/S, NORETAIN/S
Function:	This command allows for a screen format change to the currently addressed DeluxePaint. There are options for choosing the screen height and width, palette depth, 24-bit backing store, etc.
MODEID	This keyword is always required for modifying the current mode or switching to another mode. Some of the more common ModeID numbers are listed below. ModeID information can be found in the screen format requester's display information window, or by changing that requester's settings to "display names by mode ID" from the Settings menu in the Screen Format Requester. Be sure to specify the screen and page dimensions when using ModeID.
SCREENW	This keyword sets the screen width of the current resolution.
SCREENH	This keyword sets the screen height of the current resolution.
PAGEW	This keyword allows the setting of the page width. Use this parameter if you desire a different page size than the one currently in use.
PAGEH	This keyword allows for setting of page height. Use this parameter if you desire a different page size than the one currently in use.

Paste Brush from Clipboard

Format: **PASTEBRUSH**

Function: This command pastes IFF-ILBM data from the system clipboard into DeluxePaint as a custom brush.

Restore Last Custom Brush

Format: **RESTOREBRUSH**

Function: Restores the last custom brush used and makes it the current brush.

Copy Brush to Spare

Format: **COPYBRUSHTOSPARE**

Function: This command copies the current custom brush to the spare brush memory. This command is useful for doing morphs from one brush to another and for storing a spare brush in memory.

Swap Brush with Spare

Format: **SWAPBRUSHTOSPARE**

Function: This command swaps the current custom brush with the spare custom brush.

AnimMorph to Spare

Format: **MORPHBRUSH** NUMCELS/N

Function: This command creates an animbrush of 'n' cels (frames) that morphs from the current custom brush to the spare custom brush.

NUMCELS This keyword specifies how many cels you wish your morphing animbrush to be.

Stretch/Shrink Brush

Format: **STRETCHBRUSH** X/N,Y/N

Function: This command puts the user in brush stretch/shrink mode. You can optionally also specify x and y offsets.

Size Brush In Half

Format: **HALFBRUSH**

Function: This command shrinks the current brush to half its current height and width.

Double Brush Size

Format: **DOUBLEBRUSH**

Function: This command stretches the current brush to double its current height and width.

Double Brush Width

Format: **DOUBLEBRUSHX**

Function: This command stretches the current brush to double its current width (x axis).

About ? Program Information

Format: **ABOUT**

Function: This command displays the "About DeluxePaint" window. This window contains DeluxePaint copyright, memory, image, animation, palette, registration, and ARexx port information.

Quit

Format: **QUIT** FORCE/S

Function: This command exits the currently addressed program.

FORCE This switch bypasses the "Save, Don't Save, Cancel" requester and forces the program to exit.

Brush Menu

Load Brush

Format: **LOADBRUSH** FILE,DITHER/S,NODITHER/S, PALETTE/S,NOPALETTE/S

Function: This command loads IFF ILBM files as brushes using the ASL (Amiga Standard Libraries) Load requester. Path and File name, keeping the screen format, and dithering or no dithering, can also be specified optionally.

FILE This keyword specifies that a path and filename are to follow. It is recommended that paths and filenames be enclosed in quotes.

DITHER This switch tells the program that you wish to dither the brush that is to be loaded if it is an option. Generally, the program will only offer the dither/no dither options when the current screen mode is register based and the brush being loaded is a HAM or 24-bit brush.

NODITHER This switch tells the program that you wish no dithering be done to the brush that is to be loaded if it is an option. Please see above about how DeluxePaint determines the dither/no dither options.

PALETTE This switch tells the program to automatically use the brush palette when the specified brush file has been loaded.

NOPALETTE This switch is the default mode of the program, and turns off the Palette switch.

Example: "LOADBRUSH "DPAINTV:BRUSH/BALL.BRUSH" DITHER NOPALETTE"

Save Brush

Format: **SAVEBRUSH** FILE,FORCE/S, MASK/S,NOMASK

Function: This command saves the current custom brush using the ASL (Amiga Standard Libraries) Save requester. Path, filename, whether to overwrite an existing file, and whether to save with a translucency mask can also be specified optionally.

FORCE This switch allows the automatic overwrite of an existing file that has the same name as the one you are currently saving. Normally, the program issues a warning requester telling you that the file you are about to save already exists and allows you to cancel.

Copy Brush to Clipboard

Format: **COPYBRUSH** MASK/S,NOMASK/S

Function: This command copies the current custom brush to the system clipboard. The Mask, Nomask switches specify whether you want the brush's translucency mask copied as well or not.

Rotate Brush Handle

Format: **ROTATEHANDLE**

Function: This command changes the brush handle from its current offset and rotates clockwise and back to centre. The default brush handle position is centre. Multiple invocations of the command rotates the handle to lower right, lower left, upper left, upper right, and back to centre respectively.

Place Brush Handle

Format: **PLACEHANDLE** OFFSETX/N,OFFSETY/N

Function: This command changes the handle of the current brush to a user specified custom x and y offset. The coordinate system used is DeluxePaint's internal system. 0,0 is the current location of the handle. A positive x and y direction will offset the brush's handle to the right (x) and below (y) the current location. If a negative number is to be used, both numbers must be enclosed in quotation marks; this avoids ARexx arithmetic conversion errors.

Examples: PLACEHANDLE OFFSETX 100 OFFSETY 100
PLACEHANDLE 0 100
PLACEHANDLE "-100 -100"

Solid Body Brush Mode

Format: **SOLIDBODY** OFF/S,ON/S,TOGGLE/S

Function: This command sets the state of transparency for a custom brush's body from transparent (default) to solid.

Frame Only Brush Mode

Format: **FRAMEONLY** OFF/S,ON/S,TOGGLE/S

Function: This command sets the state of the "Frame Only" custom brush mode. When on, this mode only displays a wire frame of the brush's mask. This mode offers improved speed and placement accuracy, especially for odd shaped brushes.

Free Brush
From Memory

Format: **FREEBRUSH**

Function: This command frees memory of any custom brush in memory, including the spare brush.

Mode Menu

Matte Mode

NOTE: For further information on the function of each of the following colour modes please consult the ***Reference*** section of the manual.

Format: **MATTE**

Function: This command puts the program into MATTE mode.

Colour Mode

Format: **COLOR**

Function: This command puts the program into COLOUR mode.

Double Brush Height

Format: **DOUBLEBRUSHY**
Function: This command stretches the current brush to double its current height (yd axis).

Flip Brush Horizontally (X)

Format: **FLIPBRUSHX**
Function: This command flips the current custom brush on its horizontal (x) axis.

Flip Brush Vertically (Y)

Format: **FLIPBRUSHY**
Function: This command flips the current custom brush on its vertical (y) axis.

Outline Brush

Format: **OUTLINEBRUSH**
Function: This command outlines the current custom brush with a single pixel using the current foreground colour as the outline.

Trim Brush Outline

Format: **TRIMBRUSH**
Function: This command trims or strips away a one pixel outline from the current custom brush.

Rotate Brush 90°

Format: **ROTATEBRUSH90**
Function: This command rotates the current custom brush 90 degrees clockwise.

Rotate Brush Any Angle

Format: **ROTATEBRUSHANYANGLE**
Function: This command sets the current custom brush to an interactive mode that allows the rotation of the brush to any angle.

Shear Brush Distortion

Format: **SHEARBRUSH**
Function: This command sets the current custom brush to an interactive mode that allows a controlled horizontal distortion of the brush. The top part of the brush is anchored and the distortion takes place by moving the mouse either to the left or the right of the current brush position.

Bend Brush Distortion

Format: **BENDBRUSHX**
Function: This command sets the current custom brush to an interactive mode that allows the bending of the brush in a horizontal direction (x). Moving the mouse either left or right determines the amount of bend.

Format: **BENDBRUSHY**
Function: This command sets the current custom brush to an interactive mode that allows the bending of the brush in a vertical direction (y). Moving the mouse either up or down determines the amount of bend.

KEEPFMT This switch tells the program that you wish to keep the current screen format and palette depth. The anim to be loaded will be automatically converted to the new screen format and palette depth.

SHOW This switch is the default program state and displays the animation currently being loaded into the program.

NOSHOW This switch turns off the Show option so that the animation files are hidden as they are loaded into the program.

APPEND This switch turns on the Append option so that the animation file being loaded in will be appended to the end of the pre-existing animation in memory (within normal program restraints).

NOAPPEND This switch turns off the Append option and is the default state of the program. Animation files being loaded overwrite any pre-existing picture of animation.

Save Animation

Format: **SAVEANIM** FILE,START/N,END/N,OP5/S,OP8WORD/S, OP8LONG/S,FORCE/S

Function: This command saves the current frame as pictures using the ASL (Amiga Standard Libraries) Save requester. Path, filename, and screen format changing can also be specified optionally.

START This numeric parameter specifies that you wish to save a range of animation frames as an animation file, and using the Start parameter sets the starting frame number. Use the End parameter in the same manner to specify the ending frame number in your range.

OP5 This switch is the default program state and saves your files in the IFF-Anim Op-5 format.

OP8WORD This switch tells the program that you wish to save your animation file in IFF-Anim OP-8 word format.

OP8LONG This switch tells the program that you wish to save your animation file in the IFF-Anim OP-8 long format.

FORCE This switch allows the automatic overwrite of an existing file that has the same name as the one you are currently saving. Normally, the program issues a warning requester telling you that the file you are about to save already exists and allows you to cancel from it.

Move Requester

Format: **ANIMMOVE**

Function: This command invokes the Move requester for user input.

Load Move Settings

Format: **LOADMOVE** FILE/F

Function: This command invokes an ASL Load requester that allows the pre-loading of saved settings to the move requester. Specific paths and filenames can be used optionally using the FILE argument. Paths and filenames should be enclosed in quotation marks.

Example: “LOADMOVE “DPAINTV:MOVE/ANIMBASICS1.MOVE””

Save Move Settings

Format: **SAVEMOVE** FILE/A,FORCE/S

Function: This command invokes an ASL save requester that allows the saving of the current move requester settings. Path and filename and whether to overwrite an existing filename can be specified using the FILE and FORCE parameters respectively.

Replace Mode

Format: **REPLACE**
Function: This command puts the program into REPLACE mode.

Smear Mode

Format: **SMEAR**
Function: This command puts the program into SMEAR mode.

Shade Mode

Format: **SHADE**
Function: This command puts the program into SHADE mode. This mode requires that an active cycle range be in use.

Blend Mode

Format: **BLEND**
Function: This command puts the program into BLEND mode

Cycle Mode

Format: **CYCLE**
Function: This command puts the program into CYCLE mode. This mode requires that an active cycle range be in use.

Smooth Mode

Format: **SMOOTH**
Function: This command puts the program into SMOOTH mode.

Mix Mode

Format: **MIX**
Function: This command puts the program into MIX mode.

HBrite Mode

Format: **HBRITE**
Function: This command puts the program into HBRITE mode. This mode requires that the program be in a Halfbrite resolution to be active.

RubThru

Format: **RUBTHRU**
Function: This command puts the program into RUBTHRU mode. This mode requires a spare page to be active.

Anim Menu

Load Animation

Format: **LOADANIM** FILE,CHGTOFMT/S,KEEPFMT/S,SHOW/S, NOSHOW/S,APPEND/S,NOAPPEND/S
Function: This command loads IFF ANIM files using the ASL (Amiga Standard Libraries) Load requester. Path, filename, and screen format changing can also be optionally specified.
FILE This keyword specifies that a path and filename are to follow. It is recommended that paths and filenames be enclosed in quotes.
CHGTOFMT This switch tells the program that you wish to change the current screen format and palette depth to that of the anim that is to be loaded.

INPLACE	This switch sets the Move requester to record all of the move on the current frame.
BACKWARD	This switch sets the Move requester to record your move in reverse order by going to the last frame in the move count and painting your brush in reverse.

Fade Move Settings

Format: **SETMOVEFADE** START/N/K,END/N/K

Function: This command sets the starting and ending fade values for your move. This command accepts values 0 (solid) to 255 (translucent).

Record Move

Format: **RECORDMOVE** PREVIEW/S,TRAILS/S,FILL/S,DRAW/S

Function: This command executes your move presets in one of four manners. Using the appropriate switch you can preview your settings (PREVIEWS), perform a trails move (TRAILS), a perspective fill move (FILL), or a regular move (DRAW).

Camera Move

Format: **CAMERAMOVE**

Function: This command invokes the Camera Move requester for user input.

Load Camera Settings

Format: **LOADCAM** FILE/F

Function: This command invokes an ASL load requester that allows the pre-loading of saved settings to the camera requester. Specific paths and filenames can be used optionally using the FILE argument. Paths and filenames should be enclosed in quotation marks.

Save Camera Settings

Format: **SAVECAM** FILE/A,FORCE/S

Function: This command invokes an ASL save requester that allows the saving of the current camera requester settings. Path and filename and overwriting an existing filename can be specified using the FILE and FORCE parameters respectively.

Camera Coordinate Settings

Format: **SETCAMCOORDS** DX/N/K,DY/N/K,DZ/N/K, DISPCAM/K,NODISPCAM/S, CYCLIC/S,NOCYCLIC/S

Function: This command allows for the setting of the Camera requester's coordinate settings.

DX	This numeric keyword followed by a legal integer specifies the distance in X that you would like to set.
DY	This numeric keyword followed by a legal integer specifies the distance in Y that you would like to set.
DZ	This numeric keyword followed by a legal integer specifies the distance in Z that you would like to set.
DISPCAM	This switch sets the distance movements relative to the camera's coordinate system instead of the screen's coordinate system.
NODISPCAM	This switch sets the distance movements relative to the screen's coordinate system instead of the camera's coordinate system.

Move Coordinate Settings

Format:	**SETMOVECOORDS** DX/N/K,DY/N/K,DZ/N/K, AX/N/K,AY/N/K,AZ/N/K,DISPBRUSH/S, NODISPBRUSH/S,ANGBRUSH/S,NOANGBRUSH/S, CYCLIC/S,NOCYCLIC/S,GOBACK/S
Function:	This command allows for the setting of the Move requester's coordinate settings.
DX	This numeric keyword followed by a legal integer specifies the distance in X that you would like to set.
DY	This numeric keyword followed by a legal integer specifies the distance in Y that you would like to set.
DZ	This numeric keyword followed by a legal integer specifies the distance in Z that you would like to set.
AX	This numeric keyword followed by a legal integer specifies the angle in X that you would like to set.
AY	This numeric keyword followed by a legal integer specifies the angle in Y that you would like to set.
AZ	This numeric keyword followed by a legal integer specifies the angle in Z that you would like to set.
DISPBRUSH	This switch sets the distance movements relative to the brush's coordinate system instead of the screen's coordinate system.
NODISPBRUSH	This switch sets the distance movements relative to the screen's coordinate system instead of the brush's coordinate system.
ANGBRUSH	This switch sets the angle movements relative to the brush's coordinate system instead of the screen's coordinate system.
NOANGBRUSH	This switch sets the angle movements relative to the screen's coordinate system instead of the brush's coordinate system.
CYCLIC	This switch sets the move requester to create cyclic animations. See the ***Reference*** section for a further explanation.
NOCYCLIC	This switch turns off the cyclic animation switch.
GOBACK	This switch restores the brush's starting position for your next move to the last place the brush was manually stamped.

Move Options Settings

Format:	**SETMOVEOPTS** SLOWIN/N/K,SLOWOUT/N/K, COUNT/N,GOFROM/S,COMETO/S,FORWARD/S, INPLACE/S, BACKWARD/S
Function:	This command sets the various options for the Move requester.
SLOWIN	This numeric keyword sets the number of frames over which you want your brush move to decelerate.
SLOWOUT	This numeric keyword sets the number of frames over which you want your brush move to accelerate.
COUNT	This numeric keyword sets the number of frames over which you want your brush moved.
GOFROM	This switch sets the Move requester such that your move paints from where you first placed your brush and moves forward. This is the default switch.
COMETO	This switch sets the Move requester such that a move paints to where you last placed your brush and begins at an earlier frame.
FORWARD	This switch sets the Move requester to record forward from where you placed your brush starting position. This is the default switch.

Libraries) Save requester. Path and filename and whether to overwrite an existing file can also be specified optionally.

FORCE This switch allows the automatic overwrite of an existing file that has the same name as the one you are currently saving. Normally, the program issues a warning requester telling you that the file you are about to save already exists and allows you to cancel the operation.

ckup AnimBrush

Format: **PICKANIMBRUSH** LEFT/N,TOP/N,WIDTH/N, HEIGHT/N,COUNT/N,CUT/S

Function: This command displays the AnimBrush Pickup requester and optionally will pickup a specified area (left, top, width, height) and specified number of frames (count) and create an animated custom brush (AnimBrush).

CUT Switches AnimBrush pickup mode from copying the brush data from the screen to picking up or cutting out the brush data off the screen. This switch is the equivalent of a user picking up an AnimBrush with the right mouse button in DeluxePaint.

Example: PICKUPANIMBRUSH left 110 top 90 width 20 height 20 count 10 cut

AnimBrush Settings

Format: **SETANIMBRUSH** FORWARD/S,REVERSE/S,PING/S, DURATION/N,CURRENT/N

Function: This command displays the AnimBrush Settings requester which allows the user to set the direction and duration of the current AnimBrush in memory.

FORWARD This switch sets the current AnimBrush to play its cels forward.

REVERSE This switch sets the current AnimBrush to play its cels in reverse order.

PING This switch sets the current AnimBrush to play its cels from beginning to end to beginning.

DURATION This numeric parameter allows you to set the number of frames it takes the current AnimBrush to move completely through all its cells.

CURRENT This numeric parameter lets you set the current AnimBrush cel to be displayed.

e AnimBrush in Memory

Format: **USEANIMBRUSH**

Function: This command restores the AnimBrush in memory and makes it the current brush. This command is similar to RESTOREBRUSH.

Free AnimBrush m Memory

Format: **FREEANIMBRUSH**

Function: This command removes the current AnimBrush from memory.

Number of Frames

Format: **SETFRAMES** NUMBER/N

Function: This command displays the Set # of Frames requester and sets the number of current animation frames to a specified number. If the number specified is less than the current number of frames, the program will begin deleting frames from the current frame forward until the number of frames is equal to the specified number.

CYCLIC	This switch sets the camera requester to create cyclic animations. See the *Reference* section for a further explanation.
NOCYCLIC	This switch turns off the cyclic animation switch.

Camera Options Settings

Format:	**SETCAMOPTS** SLOWIN/N/K,SLOWOUT/N/K, COUNT/N,GOFROM/S,COMETO/S,WRAP/S,NOWRAP/S
Function:	This command sets the various options for the Camera Move requester.
SLOWIN	This numeric keyword sets the number of frames over which you want your camera move to decelerate.
SLOWOUT	This numeric keyword sets the number of frames over which you want your camera move to accelerate.
COUNT	This numeric keyword sets the number of frames over which you want your camera moved.
GOFROM	This switch sets the Camera Move requester such that your move paints from where you first placed your camera and moves forward. This is the default switch.
COMETO	This switch sets the Camera Move requester such that a move paints to where you last placed your camera and begins at an earlier frame.

Record Camera Move

Format:	**RECORDCAM** PREVIEW/S,NEW/S,BEFORE/S,AFTER/S
Function:	This command executes your camera presets in one of four manners. Using the appropriate switch you can preview your settings (PREVIEWS), create a new animation (NEW), insert an animation before the current frame of the existing animation (BEFORE), or insert an animation after the current frame of the existing animation.

Load AnimBrush

Format:	**LOADANIMBRUSH** FILE,DITHER/S,NODITHER/S, PALETTE/S,NOPALETTE/S
Function:	This command loads IFF AnimBrush files using the ASL (Amiga Standard Libraries) Load requester. Path and filename and dithering or no dithering can also be specified optionally.
FILE	This keyword specifies that a path and filename are to follow. It is recommended that paths and filenames be enclosed in quotes.
DITHER	This switch tells the program that you wish to dither the animbrush that is to be loaded if it is an option. Generally the program will only offer the dither/no dither options when the current screen mode is register based and the animbrush being loaded is a HAM or 24-bit brush.
NODITHER	This switch tells the program that you wish no dithering be done to the brush that is to be loaded if it is an option. Please see above how DeluxePaint determines the dither/no dither options.
PALETTE	This switch tells the program to automatically use the AnimBrush palette when the specified AnimBrush file has been loaded.
NOPALETTE	This switch is the default mode of the program, and turns off the Palette switch.

Save AnimBrush

Format:	**SAVEANIMBRUSH** FILE,FORCE/S
Function:	This command saves the current animbrush using the ASL (Amiga Standar

JIFFIES This numeric parameter will allow the setting of frame pauses that are longer than one second. The values allowed are positive whole integers that represent a fraction of the legal maximum frame rate allowed for the specific resolution you are working in. For example, in PAL the maximum legal speed in Hi-Res is 25 FPS, so JIFFIES 50 would equal a 2 second pause on whatever frame(s) were specified.

NOTE: The following parameters will only take affect in BYFRAME mode. They will have no effect if used with the GLOBAL switch.

ALL This switch indicates that the BYFRAME, and FPS or JIFFIES parameters you have specified will be applied to all the frames in the current animation.

CURRENT This switch indicates that the BYFRAME, and FPS or JIFFIES parameters you have specified will only be applied to the current frame in your animation.

RANGE This switch indicates that the BYFRAME, and FPS or JIFFIES parameters you have specified will be applied to the START and END frame numbers you have specified.

Set Frame Palette

Format: **SETFRAMEPALETTE** NUMBER/N,MAKE/S,
ALL/S,CURRENT/S,RANGE/S,START/N,END/N

Function: This command displays the Set Frame Palette requester which allows for the creation of multiple palette animations, or for the applying of palettes to specified frames. See the ***Reference*** section for more information on how to use this feature.

NUMBER Use this numeric parameter for specifying which palette you would like applied to the frame(s) you have specified with the other parameters. Do not use this parameter in conjunction with the MAKE switch.

MAKE This switch creates a new palette entry in memory which allows you to redefine a palette, or load a new palette, and apply it to the frames specified by the other parameters. The default is the CURRENT frame. Do not use this parameter in conjunction with the NUMBER parameter as MAKE automatically increments the palette numbers.

Frame Palette Information

Format: **SETPALETTEINFO** FREE/S,NUMBER/N

Function: This command displays the Palette Information requester and optionally can free specified palette indices from memory. Animation frames using freed palettes revert to using the palette index in use before the first frame of the freed palette.

FREE This switch frees the palette index specified by the NUMBER parameter.

NUMBER This parameter specifies which palette information will be freed when used in conjunction with the FREE parameter.

Example: SETPALETTEINFO FREE 2
SETPALETTEINFO

Set Animation Play Range

Format: **SETANIMRANGE** ALL/S,RANGE/S,START/N,END/N

Function: This command displays the Set Animation Play Range requester and has

Add Animation Frames

Format: **ADDFRAMES** NUMBER/N

Function: This command displays the Add Frames requester which adds the numbe of specified animation frames to memory. This command will duplicate tl current frame or page the number of times specified by the NUMBER parameter and insert those frames after the current frame or page.

Copy Animation Frames

Format: **COPYFRAMES** ALL/S,RANGE/S,INSERT/S,START/N, END/N,BEFORE/N

Function: This command displays the Copy Frames requester and copies the current frame to all frames or a specified range of frames. Optionally you can also specify to insert a range of frames before a specific frame. Both RANGE and INSERT switches require the use of the START and END paramete

Examples: COPYFRAMES RANGE 2 8
COPYFRAMES INSERT START 1 END 4 BEFORE 20

Delete Animation Frames

Format: **DELETEFRAMES** ALL/S,CURRENT/S,RANGE/S, START/N,END/

Function: This command displays the Delete Frames requester and optionally delet the current frame, all frames, or a specified range of frames. The RANGE switch requires the use of the START and END parameters.

Animation Control Panel

Format: **ANIMCONTROLS** OFF/S,ON/S,TOGGLE/S

Function: This command is a toggle for showing or hiding the animation control panel that displays at the bottom of the screen in DeluxePaint. The command by itself will use the toggle switch.

Set Animation Frame Rate

Format: **SETFRAMERATE** GLOBAL/S,BYFRAME/S,FPS/N, JIFFIES/N,ALL/S,CURRENT/S,RANGE/S,START/N, END/N

Function: This command displays the Set Frame Rate requester and allows for the s ting of a global frame rate for an animation (GLOBAL) or a variable frame rate for the animation (BYFRAME). Please see the ***Reference*** section of th manual for more information on how to use this feature.

GLOBAL This switch indicates that the animation will run at a single frame rate that is set by the FPS parameter.

BYFRAME This switch indicates that the animation frames specified by the ALL, CU RENT or RANGE switches will use a frame rate specified by the FPS or JIFFIES parameters.

FPS This numeric parameter will take legal values for setting a global or variable frame rate. FPS stands for Frames Per Second. GLOBAL frame rates are positive whole integers from 1 to the maximum rate allowed for the speci resolution your are working in. This information can be obtained from the Screen Format Requester's Display Information window. BYFRAME fra rates are multiples of the maximum frame rate. FPS values that are fracti ally less than 1 become frame pauses in JIFFIES.

Ping Pong Animation

Format: **PLAYPING**

Function: This command plays the current animation in ping pong fashion until a mouse click, spacebar key, or Esc key press. This command is the equivalent to a user pressing 6 in the DeluxePaint interface. Please see the GUI warning above.

Stop Animation

Format: **STOPANIM**

Function: This command stops the current animation as if a mouse click, spacebar key, or Esc key press has occurred while the animation was playing. Please see the GUI warning above.

Compressed Memory Model

Format: **ANIMCOMPRESSED**

Function: This command sets the memory model which you would like to use to create your animations to the Compressed memory model. Please see the ***Reference*** section for a more complete explanation of this feature. If animation frames exist, the user will be warned that all frames will be deleted. The compressed method is the default memory model that DeluxePaint V uses.

Expanded Memory Model

Format: **ANIMEXPANDED**

Function: This command sets the memory model which you would like to use to create your animations to the Expanded memory model. Please see the ***Reference*** section for a more complete explanation of this feature. If animation frames exist, the user will be warned that all frames will be deleted.

Colour Menu

WARNING: The GUI should be unlocked before issuing this and other animation play commands. See, LOCKGUI, UNLOCKGUI.

Gradient Range Panel

Format: **COLORRANGE**

Function: This command displays the Gradient Range Panel.

Colour Cycling

Format: **COLORCYCLE** OFF/S,ON/S,TOGGLE/S

Function: This command is a toggle for colour cycling. An active cycle range and speed must be current set for there to take any effect. It is the equivalent of a user pressing the Tab key in the DeluxePaint interface. Optionally there are switches for turning off, on and toggling the current state of colour cycling.

Palette Mixer Panel

Format: **COLORMIXER** OFF/S,ON/S,TOGGLE/S

Function: This command toggles the display of the Palette Mixer panel in the program.

parameters to specify ALL frames or a RANGE of frames. ALL frames is t program default.

Example: SETANIMRANGE RANGE START 30 END 100

Display Previous Frame

Format: **PREVFRAME**

Function: This command displays the previous frame and is the equivalent of a user pressing 1 in the DeluxePaint interface.

Display Next Frame

Format: **NEXTFRAME**

Function: This command displays the next frame and is the equivalent of a user pressing 2 in the DeluxePaint interface.

Go to Frame

Format: **GOTOFRAME** NUMBER/N,START/S,END/S,AGAIN/S

Function: This command displays the Go to Frame requester. Optionally a frame number can be specified using the NUMBER parameter. This is the equiv lent of a user pressing 3 in the DeluxePaint interface.

START This switch tells the program to go to the first frame of your animation and is the equivalent of the user pressing Shift-1 in the DeluxePaint interface.

END This switch tells the program to go to the last frame in your animation and is the equivalent of the user pressing Shift-2 in the DeluxePaint interface.

AGAIN This switch tells the program to go to the last frame specified using the GOTOFRAME command or the user interface. This is the equivalent of the user pressing Shift-3 in the DeluxePaint interface.

Example: GOTOFRAME 45

Loop Animation Forward

Format: **PLAYLOOPFWD**

Function: This command plays the current animation forward and loops it continuously until a mouse click, spacebar key, or Esc key press. This command is the equivalent to a user pressing 4 in the DeluxePaint interface.

WARNING: The GUI should be unlocked before issuing this and other animation play commands. See, LOCKGUI, UNLOCKGUI.

Play Animation Once Forward

Format: **PLAYFORWARD**

Function: This command plays the current animation forward once until a mouse click, spacebar key, or Esc key press. This command is the equivalent to a user pressing 5 in the DeluxePaint interface. Please see the GUI warning above.

Save Colour Set

Format: **SAVECOLORSET** FILE,FORCE/S

Function: This command displays the ASL Save Colour Set file requester and saves the current colour set (can be different from the palette) to the specified path with the given filename.

WARNING: UNDO does not reverse the following seven background/foreground colour changes. Please save your image or animation before attempting these commands.

Change BG to FG

Format: **BGTOFG** ALL/S,CURRENT/S,RANGE/S,START/N,END/N

Function: This command changes all pixels that use the current background colour to use the current foreground colour. If there are multiple frames, you can optionally specify what frame or range of frames you wish to apply this function to. This command does not affect the palette order.

Swap BG with FG

Format: **SWAPBGFG** ALL/S,CURRENT/S,RANGE/S, START/N,END/N

Function: This command swaps all pixels in the current background colour with the current foreground colour. This command doesn't affect the palette order.

Remap

Format: **REMAP** ALL/S,CURRENT/S,RANGE/S,START/N,END/N

Function: This command finds the closest colours in the current palette to that of its original palette and "remaps" the current frame(s) to those new colours.

Recompute

Format: **RECOMPUTE** ALL/S,CURRENT/S,RANGE/S, START/N,END/N

Function: This command has not effect in any modes other than HAM or 24-bit backing. This command recomputes the picture data. In HAM it remaps the data with the current palette, thereby possibly reducing the amount of HAM fringing seen when moving a custom brush across the screen. In 24-bit backing mode, this command will give you the best screen palette to represent the 24-bit data. Use this command when working in 24-bit mode to approximate the best screen palette. If there are multiple frames, you can optionally specify what frame or range of frames you wish to apply this function to.

Brush BG to FG

Format: **BRUSHBGTOFG**

Function: This command changes all custom brush pixels that use the current background colour to use the current foreground colour. This command does not affect the palette order or current frame(s).

Swap Brush BG with FG

Format: **SWAPBRUSHBGFG**

Function: This command swaps all custom brush pixels in the current background colour with the current foreground colour. This command does not affect the palette order or current frame(s).

Arrange Palette Panel

Format: **ARRANGEPALETTE** OFF/S,ON/S,TOGGLE/S
Function: This command toggles the display of the Arrange Palette panel in the program.

Use Brush Palette

Format: **USEBRUSHPALETTE**
Function: This command tells DeluxePaint to use the palette of the custom brush that has just been loaded.

Restore Palette

Format: **RESTOREPALETTE**
Function: This command restores and sets the palette to the palette in use before the current palette.

WARNING: Using this command or any other command that modifies an image's palette, or pixel colour without a good knowledge of colour and palette management in DeluxePaint can lead to disastrous and irreversible results. UNDO does not reverse this change. Please save your image or animation before attempting this command.

Use Default Palette

Format: **DEFAULTPALETTE**
Function: This command sets the current palette to that of DeluxePaint's internal default palette.

Load Palette

Format: **LOADPALETTE** FILE/F
Function: This command displays the ASL Load Palette file requester and when file is chosen sets the palette or register spaces of the current mode to that of the file. Optionally, a path and filename can be specified.
FILE This keyword specifies that a path and filename are to follow. It is recommended that paths and filenames be enclosed in quotes.

Save Palette

Format: **SAVEPALETTE** FILE,FORCE/S
Function: This command displays the ASL Save Palette file requester and saves out the current palette (which can be different from colour set) to the specified path with the given filename.
FORCE This switch allows the automatic overwrite of an existing file that has the same name as the one you are currently saving. Normally the program issues a warning requester telling you that the file you are about to save already exists and allows you to cancel the operation.
Example: SAVEPALETTE FILE "dpaintv:colours/test.pal" FORCE

Load Colour Set

Format: **LOADCOLORSET** FILE/F
Function: This command displays the ASL Load Colour Set file requester and when file is chosen sets the colour set of the current mode to that of the file. Optionally, a path and filename can be specified.

ree/Discard Stencil

Format: **FREESTENCIL**
Function: This command discards the current stencil mask from memory and reallocates that memory for usage.

Load Stencils

Format: **LOADSTENCIL** FILE/F
Function: This command displays the ASL Load Stencil requester which allows the loading of pre-saved stencils. Please see the ***Reference*** section for more information on what kind of data is actually loaded in. Saved stencils are basically area based pixel masks. The FILE parameter can be used optionally to indicate a path and filename for your saved files.

ave Stencils

Format: **SAVESTENCIL** FILE,FORCE/S
Function: This command displays the ASL Save Stencil file requester and saves out the stencil in memory to the specified path with the given filename.
Example: SAVESTENCIL "work:images/stencils/kedars_toe.msk"

LightTable On/Off

Format: **LIGHT** OFF/S,ON/S,TOGGLE/S,LOCKON/S,LOCKOFF/S
Function: This toggle command sets the current state of the LightTable. Please see the ***Tutorials*** and ***Reference*** sections for more information on the usage of the LightTable feature. Optionally you can turn the LightTable off, on, or toggle the current state.

Merge LightTable

Format: **LIGHTMERGE**
Function: This command merges the currently viewed LightTable images into the current frame and turns off the LightTable so you can see the results of the merge.

im LightTable

Format: **DIM** OFF/S,ON/S,TOGGLE/S
Function: This toggle command sets the current state of the LightTable Dim feature. Dim is on by default and works in all modes. Optionally you can turn Dim off, on, or toggle the current state.

LightTable Layer n/Off

Format: **LAYER** NUMBER/N,OFF/S,ON/S,TOGGLE/S,OFFSET/N/K,
DIM/N/K
Function: This command shows or hides the specifically numbered LightTable layers that have been predefined in the LightTable settings requester.

Fix Background

Format: **FIXBG**
Function: This command fixes the background by "locking" the current picture. Fixing the background uses additional memory. Please see the ***Reference*** section for additional information on this feature.

Remap Custom Brush

Format: REMAPBRUSH

Function: This command finds the closest colours in the current palette to that of its original palette and "remaps" the current custom brush to those new colours.

Change Brush Transparency

Format: CHANGEBRUSHTRANS

Function: This command changes the transparency colour of the currently selected brush to the current background colour.

Effects Menu

Show Stencil

Format: SHOWSTENCIL

Function: This command dims the display of the current frame and shows the areas that are currently stencilled in a contrasting lighter colour. A mouse click or keypress returns back to the image.

Make Stencil

Format: SETSTENCIL

Function: This command displays the Make Stencil requester for user input. Please see the ***Reference*** section for more information on using the Make Stencil requester.

Remake Stencil

Format: REMAKESTENCIL

Function: This command locks colours that have been newly applied to the screen and are also locked in the Make Stencil Requester.

Paint Stencil

Format: PAINTSTENCIL OFF/S,ON/S,TOGGLE/S

Function: This toggle command puts you into a special mode that allows you to use any brush or drawing tool to create an area based stencil. Choosing the command a second time or using the off, or toggle parameters will set your area based stencil. Creating a colour based stencil or using the SETSTENCIL or REMAKESTENCIL commands discards the Paint Stencil

Reverse/Inverse Stencil

Format: REVERSESTENCIL

Function: This command inverts the current stencil whether it is area-based or colour-based.

Stencil On/OFF

Format: STENCIL OFF/S,ON/S,TOGGLE/S

Function: This toggle command sets the state of the current stencil in memory. Optionally, you can turn it off, on, or toggle the current state.

Level numeric keyword for setting a specific percentage value. Legal values for the Level parameter are 1 to 100. The program's default value it 50.

Examples: SETTRANSLUCENCY 75
SETTRANSLUCENCY level 45

Pressure On/Off

Format: **PRESSURE** OFF/S,ON/S,TOGGLE/S

Function: This toggle command sets the current state for the pressure tablet feature. You can optionally specify the state by using the off, on, or toggle parameter switches. See the ***Reference*** section for additional information on how to use pressure.

Pressure Settings

Format: **SETPRESSURE**

Function: This command displays the Pressure settings requester for user input and customisation of the pressure-sensitive tablet support in DeluxePaint.

Open Media

Format: **OPENMEDIA** FILE/F

Function: This command displays the ASL Open Media requester which allows the loading of pre-defined DeluxePaint V Media libraries. Please see the ***Reference*** section for more information on media libraries. The FILE parameter can be used optionally to indicate a path and filename for your media libraries.

Close Media

Format: **CLOSEMEDIA**

Function: This command removes the media library and its effects from the current project and restores the memory used to store the library.

Texture On/Off

Format: **TEXTURE** OFF/S,ON/S,TOGGLE/S

Function: This toggle command sets the current state of the Texture background feature in DeluxePaint V. You can optionally specify the state by using the off, on, or toggle parameter switches. See the ***Reference*** section for additional information on how to use Texture.

Load Texture

Format: **LOADTEXTURE** FILE/F

Function: This command displays the ASL Load Texture requester which allows the loading of pre-defined IFF textures. Please see the ***Reference*** section for more information on Textures. The FILE parameter can be used optionally to indicate a path and filename for your textures. Textures can be any IFF data, the better it tiles the more useful. Ideal textures should be created in a hi-res 16 colour greyscale mode.

Invert Texture

Format: **INVERTTEXTURE**

Function: This command inverts the data currently in memory as a texture.

Free Background

Format: **FREEBG**

Function: This command "unlocks" the background and merges it with any foreground data that was painted over it while it was "locked". This also frees up the extra memory that was allocated to fixing the background.

Lock Foreground

Format: **LOCKFG**

Function: This command creates an area stencil of the foreground data you have painted or added to an image that has had its background fixed. Use this command in conjunction with the FIXBACKGROUND command above.

Anti-Alias

Format: **ANTIALIAS** OFF/S,LOW/S,HIGH/S

Function: This command controls the program's anti-aliasing settings.

OFF This switch turns off the program's anti-aliasing code.

LOW This switch sets the program's anti-aliasing code to the low setting.

HIGH This switch sets the program's anti-aliasing to the high setting.

Processing On/Off

Format: **PROCESS** OFF/S,ON/S,TOGGLE/S

Function: This toggle command sets the state of the colour process function built into the program. You can optionally specify the state by using the off, on, or toggle parameter switches. See the ***Reference*** section for additional information on how to use process. By default the PROCESS command turns on Tint, unless another process type has been set. See below.

Tint Processing

Format: **SETTINT**

Function: This command sets the current colour process function to be Tint. Use this command in conjunction with the command PROCESS. See above.

Hue Processing

Format: **SETHUE**

Function: This command sets the current colour process function to be Hue. Use this command in conjunction with the command PROCESS. See above.

Value Processing

Format: **SETVALUE**

Function: This command sets the current colour process function to be Value. Use this command in conjunction with the command PROCESS. See above.

Translucency On/Off

Format: **TRANSLUCENCY** OFF/S,ON/S,TOGGLE/S

Function: This toggle command sets the state for the DeluxePaint Translucency feature. You can optionally specify the state by using the off, on, or toggle parameter switches. See the ***Reference*** section for additional information on how to use translucency.

Translucency Settings

Format: **SETTRANSLUCENCY** LEVEL/N

Function: This command displays the Translucency requester that allows a user to set the global translucency value by percent. Optionally, you can also use the

utomatic Transparency

Format: **AUTOTRANSP** OFF/S,ON/S,TOGGLE/S

Function: This toggle command sets the current state of the AutoTransp preference in DeluxePaint. You can optionally specify the state by using the off, on, or toggle parameter switches. See the ***Reference*** section for additional information on AutoTransp.

utomatic Grid

Format: **AUTOGRID** OFF/S,ON/S,TOGGLE/S

Function: This toggle command sets the current state of the AutoGrid preference in DeluxePaint. You can optionally specify the state by using the off, on, or toggle parameter switches. See the ***Reference*** section for additional information on AutoGrid.

rigin Upper Left

Format: **ORIGINUL** OFF/S,ON/S,TOGGLE/S

Function: This toggle command sets the current state of the OriginUL preference in DeluxePaint V. You can optionally specify the state by using the off, on, or toggle parameter switches. See the ***Reference*** section for additional information on OriginUL.

ast HAM Adjust

Format: **FASTADJUST** OFF/S,ON/S,TOGGLE/S

Function: This toggle command sets the current state of the FastAdjust preference in DeluxePaint V. You can optionally specify the state by using the off, on, or toggle parameter switches. See the ***Reference*** section for additional information on FastAdjust.

Mouse Tracking

Format: **MOUSETRACK** OFF/S,ON/S,TOGGLE/S

Function: This toggle command sets the current state of the MouseTrack preference in DeluxePaint V. You can optionally specify the state by using the off, on, or toggle parameter switches. See the ***Reference*** section for additional information on MouseTrack.

Format: **SETICONS**

Function: This command brings up the Icon Settings requester.

Reset to Default Settings

Format: **RESETSETTINGS**

Function: This command resets the program preferences to the original factory defaults.

estore Last aved Settings

Format: **RESTORESETTINGS**

Function: This command restores the settings from your program icon's saved tooltypes.

Free/Discard Texture

Format: **FREETEXTURE**

Function: This command discards the current texture in memory and frees the memory that was being used by the texture data.

Prefs Menu

Coordinates

Format: **COORDS** OFF/S,ON/S,TOGGLE/S

Function: This toggle command sets the current state of the coords preference in DeluxePaint V. You can optionally specify the state by using the off, on, or toggle parameter switches. See the ***Reference*** section for additional information on coords.

Fast Feedback

Format: **FASTFB** OFF/S,ON/S,TOGGLE/S

Function: This toggle command sets the current state of the Fast FB preference in DeluxePaint V. You can optionally specify the state by using the off, on, or toggle parameter switches. See the ***Reference*** section for additional information on Fast FB.

MultiCycle

Format: **MULTICYCLE** OFF/S,ON/S,TOGGLE/S

Function: This toggle command sets the current state of the MultiCycle preference in DeluxePaint V. You can optionally specify the state by using the off, on, or toggle parameter switches. See the ***Reference*** section for additional information on MultiCycle.

Be Square

Format: **BESQUARE** OFF/S,ON/S,TOGGLE/S

Function: This toggle command sets the current state of the Be Square preference in DeluxePaint. You can optionally specify the state by using the off, on, or toggle parameter switches. See the ***Reference*** section for additional information on Be Square.

Workbench

Format: **WORKBENCH** OFF/S,ON/S,TOGGLE/S

Function: This toggle command sets the current state of the Workbench preference in DeluxePaint. You can optionally specify the state by using the off, on, or toggle parameter switches. See your User's Guide for additional information on the Workbench.

Exclude Brush Edge

Format: **EXCLBRUSH** OFF/S,ON/S,TOGGLE/S

Function: This toggle command sets the current state of the ExclBrush preference in DeluxePaint. You can optionally specify the state by using the off, on, or toggle parameter switches. See the ***Reference*** section for additional information on ExclBrush.

SCREEN This switch parameter sets perspective mode so that brush rotation is done relative to the current screen coordinate system. This is the default coordinate system in use by perspective.

ANGLE This switch tells the program that angles of rotation should be displayed in the title bar when in perspective. This is the default switch.

POS This switch tells the program that brush position in three dimensional space should be displayed in the title bar when in perspective.

NOTE: If coords are on, only two dimensional coordinates will be displayed in the title bar. To make proper use of the POS or ANGLE parameters, coords should be off before going into perspective mode.

Perspective Rotations

Format: **SETPERSP** DX/N/K,DY/N/K,DZ/N/K,AX/N/K, AY/N/K,AZ/N/K, BRUSH/S,NOBRUSH/S

Function: This command sets the rotation and screen distance for your brush while in perspective mode.

DX This numeric parameter requires its keyword and specifies the distance in x that you wish to move the brush.

DY This numeric parameter requires its keyword and specifies the distance in y that you wish to move the brush.

DZ This numeric parameter requires its keyword and specifies the distance in z that you wish to move the brush.

AX This numeric keyword requires its keyword and specifies the angle in x that you wish to rotate the current brush.

AY This numeric keyword requires its keyword and specifies the angle in y that you wish to rotate the current brush.

AZ This numeric keyword requires its keyword and specifies the angle in z that you wish to rotate the current brush.

BRUSH This switch specifies that you wish to move or rotate your brush using the brush's coordinate system.

NOBRUSH This switch specifies that you wish to move or rotate your brush using the screen's coordinate system.

Exit Perspective Mode

Format: **EXITPERSP**

Function: This command exits Perspective mode.

Fix Perspective Axes

Format: **FIXPERSP** X/S,Y/S,Z/S

Function: This command fixes the specified axes so that your mouse cannot move your brush through that axis. The Z axis is fixed as a program default. The X, Y, Z switch parameters are the equivalent to a user pressing Shift-Keypad 9, Shift-Keypad 6, or Shift-Keypad 3 while in perspective mode, respectively.

Set Perspective Depth

Format: **SETPERSPDEPTH** DEPTH/N

Function: This command modifies the apparent distance from the observer. At larger perspective depths, the perspective foreshortening is at a minimum, and becoming greater as the apparent distance decreases. Please note that although, this command will take any positive or negative integer, we have found that you will want to limit your range of input from about "-290"

Save Settings

Format: **SAVESETTINGS**

Function: This command saves the current preferences settings and save directories to the program's icon as tooltypes. Please see the ***Reference*** section for more information on setting the program's preferences.

Perspective Commands

Enter Perspective Mode

Format: **ENTERPERSP**

Function: This command sets the program into Perspective Mode. Please see the Manual's Tutorials and Reference sections for additional information on how to use perspective. See also *ExitPersp* below.

Perspective Fill

Format: **PERSPFILLSCREEN**

Function: This command fills the screen with the current brush in its perspective rotation.

Perspective Reset

Format: **RESETPERSP**

Function: This command resets the brush to its original state before rotation.

Perspective Centre

Format: **CENTERPERSP** X/N,Y/N

Function: This command puts you into the centre perspective mode. In this mode you can set the perspective centre and horizon. Optionally, you can specify a screen x and screen y position using the numeric parameters given. DeluxePaint's internal coordinate system, which starts 0,0 at the upper left corner of the screen, is used.

Example: CENTERPERSP 120 100

Perspective Settings

Format: **SETPERSPOPTS** X/N/K,Y/N/K,Z/N/K,FROMBRUSH/S, ANGLESTEP/N/K,BRUSH/S,SCREEN/S,ANGLE/S,POS/S

Function: This command displays the Perspective settings requester. Additional parameters set specific settings. By default the perspective grid is set to the dimensions of your current brush.

X	This numeric parameter requires its keyword and specifies the x size for the 3D perspective grid.
Y	This numeric parameter requires its keyword and specifies the y size for the 3D perspective grid.
Z	This numeric parameter requires its keyword and specifies the z size for the 3D perspective grid. The Z axis is automatically the same as the Y axis.
FROMBRUSH	This switch automatically sets the X and Y grid values to correspond to the width and height of the brush.
ANGLESTEP	This numeric parameter requires its keyword and specifies the rotation increment used in conjunction with the shift key and the appropriate keypad rotation key.
BRUSH	This switch parameter sets perspective mode so that brush rotation is done relative to the current brush coordinate system.

Get Value Commands

Animbrush

Format: **GETANIMBRUSH** DIRECTION/S,DURATION/S, CURRENT/S

Function: This command returns the values of the current AnimBrush settings. Use the optional switches to return specific values.

DIRECTION This switch returns the values FORWARD, BACKWARD, or PING.

DURATION This switch returns the duration in number of frames it takes to move completely through its cells.

CURRENT This switch returns the current cel the AnimBrush is on.

Airbrush Values

Format: **GETAIRBRUSH** TYPE/S,RADIUS/S,FLOW/S

Function: This command returns values of the current airbrush settings. Using the optional switches returns just the specific values.

TYPE This switch returns either OLD or STANDARD

Example: GETAIRBRUSH might return the following string: STANDARD RADIUS 10 FLOW 80

GETAIRBRUSH RADIUS might return the following value: 16

Animation Range Values

Format: **GETANIMRANGE** RANGE/S,START/S,END/S

Function: This command returns values of the current animation playback range settings. Using the optional switches returns just the specific values.

RANGE This switch returns either ALL or RANGE

START This switch Returns 0 if RANGE = ALL. If RANGE = RANGE it returns the start frame.

END This switch Returns 0 if RANGE = ALL. If RANGE = RANGE it returns the end frame.

Background Colour Value

Format: **GETBGCOLOR** COLOR/S

Function: This command returns the palette index number for the current background colour. The colour switch is optional.

Camera Move Coordinates

Format: **GETCAMCOORDS** DX/S,DY/S,DZ/S,DISPLACEMENT/S, CYCLIC/S

Function: This command returns the values of the current Camera Move requester coordinate settings. Using the optional switches returns specific values.

DISPLACEMENT This switch returns the current setting of the Distance Brush check item. Checked = DISPBRUSH, Unchecked = NODISPBRUSH

Camera Move Options

Format: **GETCAMOPTS** SLOWIN/S,SLOWOUT/S,COUNT/S,FROMTO/S, WRAP/S

Function: This command returns the values of the current Camera Move option settings. Using the optional switches returns specific values.

WRAP This switch returns either WRAP or NOWRAP (remember, negative numbers must have quotes) to around 1000, numbe below or above this range will yield unpredictable results!

Example: SETPERSPDEPTH "-100"
SETPERSPDEPTH DEPTH 700

ARexx Requester Functions

Numeric Requester

Format: **REQUESTNUMBER** TITLE,PROMPT/K,NUMBER/N/K

Function: This command displays a requester that prompts the user for numeric input and returns that value to ARexx. The default requester has "User Request" for its Title, "Enter a Number:" as its Prompt and 0 as its Number. Optionally, you can specify a different title, prompt or default number. PROMPT and NUMBER are required keywords.

Example: REQUESTNUMBER TITLE ' "My Request" ' PROMPT ' "Enter # :" ' NUMBER 5

String Requester

Format: **REQUESTSTRING** TITLE,PROMPT/K,STRING/K,LEN/K

Function: This command displays a requester that prompts the user for a string entry and returns that string to ARexx. The default requester has "User Request" for its Title, "Enter Text:" as its Prompt and nothing as a String. Optionall you can specify a different title, prompt or default string, or . PROMPT, STRING, and LEN are required keywords.

Example: REQUESTSTRING TITLE ' "My Request" ' PROMPT "Your Name Please:"

OK/Cancel Requester

Format: **REQUESTOK** PROMPT/A/K, TITLE/K, CANCEL/S

Function: This command displays a requester that prompts the user for an OK. This command always requires the PROMPT parameter and a string indicating what it is you are asking the user to press OK or CANCEL. Optionally, you can specify a new title or a cancel button by using the TITLE keyword parameter and CANCEL switch.

Example: REQUESTOK PROMPT ' "Exiting DPaint..." ' CANCEL

NOTE: Closing the requester or pressing OK returns a value of 0. Choosing CANCEL returns a value of 2.

Format: **REQUESTYESNO** PROMPT/A/K,TITLE,/K,CANCEL/S

Function: This command displays a requester that prompts the user for a YES or NC answer. This command always requires the PROMPT parameter and a string indicating what it is you are asking the user to answer YES or NO to. Optionally, you can specify a new title or a cancel button by using the TITLE keyword parameter and CANCEL switch.

NOTE: Pressing YES returns a value of 0. Pressing NO returns a value of 1. Closin the requester or choosing CANCEL returns a value of 2.

Get Move Coordinates

Format: **GETMOVECOORDS** DX/S,DY/S,DZ/S,AX/S,AY/S,AZ/S, DISPLACEMENT/S,ANGLE/S,CYCLIC/S

Function: This command returns the values of the current Camera Move requester coordinate settings. Using the optional switches returns specific values.

DISPLACEMENT This switch returns the current setting of the Distance Brush check item. Checked = DISPBRUSH, Unchecked = NODISPBRUSH

ANGLE This switch returns the current setting of the Angle Brush check item. Checked = ANGBRUSH, Unchecked = NOANGBRUSH

Get Move Option Values

Format: **GETMOVEOPTS** SLOWIN/S,SLOWOUT/S,COUNT/S,FROMTO/S, DIRECTION/S

Function: This command returns the values of the current Move option settings. Using the optional switches returns specific values.

FROMTO This switch returns one of the following values: GOFROM, or COMETO

DIRECTION This switch returns one of the following values: FORWARD, INPLACE, or BACKWARD

Get Move Fade Values

Format: **GETMOVEFADE** START/S,END/S

Function: This command returns the values of the current Start and End Fade settings in the Move requester. Using either switch will return a value from 0 to 255.

Page Size Values

Format: **GETPAGESIZE** WIDTH/S,HEIGHT/S

Function: This command returns the width and height values of the current page. Using the optional switches returns specific values.

Get Current Pen

Format: **GETPEN** PEN/S

Function: This command returns a number indicating the current built in toolbox brush in use. The PEN switch is optional. The smallest built in brush (single pixel) returns a value of 0.

Get Current Pen Size

Format: **GETPENSIZE** SIZE/S

Function: This command returns a number indicating the size of the current brush in use. The size switch is optional.

Get Screen Format Values

Format: **GETSCREENFORMAT** MODEID/S,SCREENW/S,SCREENH/S, PAGEW/S,PAGEH/S,COLORS/S,BACK/S,RETAIN/S

Function: This command returns values for the current screen format in use. Please see the ***Reference*** section for more information on the Screen Format requester. Using the optional switches returns specific values.

Coordinate Values

Format: **GETCOORD** X/S,Y/S

Function: This command returns the current cursor screen coordinates. The optional switches return specific values.

Get Current Frame

Format: **GETCURFRAME** FRAME/S

Function: This command returns the number of the current frame being displayed. The FRAME switch is optional.

Foreground Colour Value

Format: **GETFGCOLOR** COLOR/S

Function: This command returns the palette index number for the current foreground colour. The colour switch is optional.

Fill Requester Values

Format: **GETFILL** TYPE/S,RANGE/S,DITHER/S,DITHERTYPE/S

Function: This command returns the values of the current Fill requester settings. Optional switches return specific values.

TYPE This switch returns one of the following values: SOLID, BRUSH, WRAP, PERPSECTIVE, RUB, HBRITE, or PATTERN.

DITHERTYPE This switch returns one of the following values: RANDOM, PATDITHER, or SMOOTH.

Font Values

Format: **GETFONT** NAME/S,SIZE/S,STYLE/S

Function: This command returns the values of the current Font requester settings. Optional switches return specific values.

Get Frame Palette

Format: **GETFRAMEPALETTE** NUMBER/S

Function: This command returns the numeric index for the palette in use on the current frame. Please see the ***Reference*** section for more information on the Frame Palette requester. Using the NUMBER switch returns just a numeric value.

Get Frame Rate Values

Format: **GETFRAMERATE** TYPE/S,FPS/S,JIFFIES/S

Function: This command returns the values for the current Frame Requester settings. Please see the ***Reference*** section for more information on the Set Frame Rate requester.

TYPE This switch returns one of the following values: GLOBAL or BYFRAME

Get Number of Frames

Format: **GETFRAMES** NUMBER/S

Function: This command returns the number of frames in the current animation. Using the NUMBER switch returns just a numeric value.

Get Grid Values

Format: **GETGRID** X/S,Y/S

Function: This command returns the current Grid requester X, Y values. Optional switches return specific values.

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Get Spacing Values

Format:	GETSPACE TYPE/S,VALUE/S
Function:	This command returns the current state and values for the Spacing Requester. Using the optional switches returns specific values.
TYPE	This switch returns one of the following values: CONTINOUS, NTOTAL, NTHDOT, or AIRBRUSH

Get Symmetry Values

Format:	GETSYMMETRY TYPE/S,MIRROR/S,ORDER/S, CENTERX/S, CENTERY/S,WIDTH/S,HEIGHT/S
Function:	This command returns the current state and values of the Symmetry requester.
TYPE	This switch returns either POINT, or TILE.
MIRROR	This switch returns either MIRROR or CYCLIC.

Get Translucency Values

Format:	GETTRANSLUCENCY LEVEL/S
Function:	This command returns the current percentage value for the global translucency requester. The value returned can be 0 (completely opaque) to 100 (completely translucent). Please note that this value is different from the fade values in the Move requester.

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When Chuck is not working on DeluxePaint, he runs his company, Trimedia Inc. He lives in Gurnee, IL, right next to a Six Flags theme park, with his wife Tina and daughter Lindy. In his spare time (if any) Chuck enjoys model railroading & marine aquariums.

Dan Silva

By the time legendary Dan joined Electronic Arts in 1983, he'd already worked with computers and computer graphics for 20 years. In productive stints at Informatics, Xerox, and Lucasfilm, he had designed a video editor and new generation bitmap editor, as well as an interactive language for displaying equations as graphic images.

At EA he started work on Prism, a paint program that was to be an in-house tool for software development. Prism eventually became DeluxePaint (1985), and was an instant success. Dan started improving DeluxePaint almost immediately, and the result was DeluxePaint II (1986), the best program available for the Amiga at that time. As fine as the program was, he still wasn't satisfied — he wanted paintings that could move. Dan's lifelong fascination with animation became the driving force of the best-selling DeluxePaint III. Dan has moved on to other projects, but his code lives on.

Credits

Programming: Lee Özer, Dallas J. Hodgson
ARexx Extensions: Chuck Swan
Original Design and Code: Daniel Silva
Producers: Jack Falk, Hal Jordy III
Associate Producer: Orlando V. Guzman
Assistant Producer: Stephen Barry
Technical Director: David Walker
Production Assistance: Doug Shannon, Walter Ianneo
Software Testing: Geoff Rantala, Kedar Roy
Documentation: David Lee, R. J. Berg, with contributions from Orlando Guzman, Hal Jordy, Andrea Smith, and Lee Özer
Documentation Layout: Tom Peters
Product Marketing: Ann Williams, Sue Goerss
Public Relations: Dany Brooks
Art: Gene Hamm, Cris Palomino, Ken Costello, Don Woo, Arthur Koch, Connie Braat, Avril Harrison, Mike Nowak, Greg Johnson, Michael Kosaka, Michael Lubuguin, Orlando Guzman, Gene Brawn, Doug Shannon, Walter Ianneo, Geoff Rantala, Tim Kolb
QA: Jonathan Harris, Walter Ianneo

EA UK Production
Associate Producer: Richard Ashdown
Assistant Producer: Danny Isaac
String Translation: Carol Agget
Testing: Jamie Bradshaw

Artist Bios

Lee Özer

When Lee entered Stanford University, she was an aspiring young artist. Oil painting had been her first love at Manhattan's famed School of Music and Art, and college might have been a pleasant diversion before entering the New York "Art Scene." At the prodding of some friends, she took a computer science course "for the fun of it."

Like many of the creative talents who have worked at Electronic Arts, Lee's entry into big-time programming began innocently enough with the Amiga. It's a familiar story: The Amiga was released, it was neat, it was fun, it had colour, and suddenly — note the slightly crazed look of excitement typical in these cases — "I've got to program this thing!" Lee was hooked.

The art world became a sweet memory. Because Stanford had no undergraduate major in computer science, Lee designed a major for herself in AI, and took all the systems and computer science courses the university had to offer. She then took time away from school to get some graphics experience, and wound up working at EA on some of Dan Silva's old code. Following six months of intensive hacking on the EGA/VGA support for the Prism graphics primitives, she returned to Stanford for her degree, and stayed on for an M.S. in Computer Systems.

Through all of her training and diverse experience, computer graphics has remained an enduring passion. Her belief that high-quality artwork can be created with a computer led her back to Electronic Arts, and has resulted in DeluxePaint IV and V. And she won't stop there.

When she's away from the keyboard, Lee's a discriminating sci-fi fan, a connoisseur of trashy TV, and a dedicated aerobics/workout freak. She and her husband Ali share their home in Palo Alto, California with two big cats named Dido and Zack.

Dallas J. Hodgson

Dallas got hooked on programming in 1978, at the dawn of the personal computing revolution. He worked his way through college and high school consulting and developing, searching for ways to integrate his interests in art and music with the creative use of technology. When the Amiga computer was released in 1985, Dallas rushed to embrace the exciting new platform and soon released the popular shareware Amiga utility NewZAP, used by thousands of Amigans world-wide.

Dallas moved from the Monterey Bay area of California to Silicon valley to get closer to where it all began. He worked on embedded operating systems, paint software, data analysis tools, disk utilities, and game software before landing his "dream job" of working with Electronic Arts on DeluxePaint V and AGA. His goal is to empower the creativity of individuals through the magic of computers.

Chuck Swan

Chuck's first love was film special effects, but learning how to program seemed like "the right thing to do." When the Amiga and DeluxePaint appeared, well, so much for film effects. His desire to add graphics tablet support to DeluxePaint led to Chuck coordinating the effort to reach a standard for tablet drivers which everyone could agree on and working with the DeluxePaint team. When he heard they were looking for a programmer to add ARexx support to DeluxePaint, he begged for a chance to work on his favourite program.

Special Thanks: Friends and family of the production team, Lisa Higgins, Jana Wilson, MaryAnn Duringer, Paul Armatta, Kenneth Dyke, Colin McLaughlan, Randy Dillon, Luc Barthelet, Keith McCurdy, EA Customer Support, Commodore-Amiga Technical Support, Jim Cooper
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Deluxe Paint V is dedicated to Jay Miner, "The Father of the Amiga." Rest in peace.

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